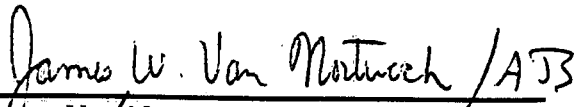
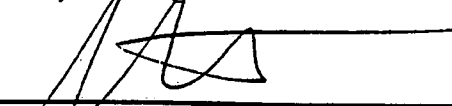


MW-19 DELINEATION

L.E. CARPENTER
WARTON, NEW JERSEY

June 1998


James W. Van Nortwick, Jr., Ph.D., P.E.
Project Manager


Steven J. Chillson, P.G.
Project Geologist



346870



RESIDUALS MANAGEMENT TECHNOLOGY, INC.

999 PLAZA DRIVE, SUITE 370

SCHAUMBURG, IL - 60173-5407

847/995-1500 - 847/995-1900 FAX



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Section 1

Introduction

1.1 Introduction

L.E. Carpenter has been conducting subsurface investigation and remedial action activities at their facility located at 170 North Main Street in Wharton, New Jersey, in accordance with the New Jersey Department of Environmental Protection (NJDEP) Amended Administrative Consent Order issued in 1986. Subsurface investigation and remedial action activities were conducted at the facility since that time and have included the advancement of soil borings, the installation of groundwater monitoring wells, soil, sediment and groundwater sampling activities, and the installation of a free-product recovery system.

In April 1994 the NJDEP issued a Record of Decision (ROD) for the L.E. Carpenter site. The ROD summarized the results of the remedial investigation, the base line risk assessment, the remedial alternatives, and presented the selected remedy. The ROD required remediation of groundwater and excavation and disposal of "hot spot" soils.

Certain "hot spot" areas have been addressed, however, there are several areas of environmental concern that are still undergoing corrective action. These include the following:

- **Free-Product Area:** The Free-Product area is approximately 100 feet by 500 feet in areal extent and is located in the central/eastern portion of the site. Free-product recovery operations are currently being conducted and groundwater remediation activities will be initiated once the free-product has been removed.
- **Hot Spot-1 Area:** The Hot Spot-1 area is located immediately west of Building 9 along the western property boundary. The groundwater in this area is impacted by bis(2-ethylhexyl) phthalate (DEHP). The nature and extent of DEHP-impacted groundwater is currently being investigated in accordance with the NJDEP-approved workplan dated August 1996.
- **Hot Spot-4 Area:** The Hot Spot-4 area is approximately 45 feet by 25 feet in size and is located southeast of the former Building 14 in the central/eastern section of the property. The soil located above the groundwater table in this area is impacted by DEHP. In accordance with the NJDEP-approved workplan dated August 1996, approximately 32 cubic yards of DEHP-impacted soil will be removed from this area and relocated to the former Waste Disposal area located along the eastern property boundary.
- **MW-19 Area:** The MW-19 area is located immediately west of Building 9 along the western property boundary. The groundwater in this area is impacted by volatile organic compounds (VOCs). The nature and extent of the VOC-impacted groundwater is currently being investigated in accordance with the NJDEP-approved workplan dated August 1996.



- **Hot Spot B Area:** The Hot Spot-B area is approximately 70 feet by 110 feet in size and is located immediately southwest of the former Building 14 in the central/eastern section of the subject site. The uppermost 5 feet of soil in this area is impacted by lead.
- **Hot Spot C Area:** The Hot Spot-C area is approximately 50 feet by 90 feet in size and is located immediately southeast of the former Building 14 and is adjacent to the Hot Spot 4 area in the central/eastern section of the subject site. The uppermost 5 feet of soil in this area is impacted by lead.
- **Wharton Enterprises Property:** This area is located off site just east of the drainage ditch which separates the L.E. Carpenter site from the Air Products, Inc. property. Surface soils at several locations in this area are impacted with polychlorinated biphenyls (PCB's).

The results of the subsurface and remedial action activities were submitted to the NJDEP and the U.S. Environmental Protection Agency (USEPA) and are described in the Final Supplemental Remedial Investigation Addendum Report (Roy F. Weston, September 1992), the Second Quarter Progress Report (Roy F. Weston, August 1996), and the Fourth Quarter 1997 Groundwater Monitoring Report (RMT, Inc., April 1998). In a letter dated January 20, 1998, the NJDEP requested additional information regarding several of the "hot spot" areas including the MW-19 area (See Appendix A). A site locator map, a site plan showing the locations of soil borings, groundwater monitoring wells, and free-product recovery system, and a site plan showing the location of the MW-19 area are presented in Figure 1, Figure 2, and Figure 3, respectively.

In February 1998, L.E. Carpenter engaged the services of RMT, Inc., (RMT) to conduct a subsurface investigation to define the extent of VOC-impacted groundwater in the vicinity of the MW-19 area as stipulated by the NJDEP in their letter dated January 20, 1998. This report specifically addresses the subsurface investigation activities conducted in the MW-19 area.

1.2 Background

The MW-19 area is located immediately west of Building 9 and is associated with two former 10,000-gallon underground storage tanks (USTs) which contained used methyl ethyl ketone (MEK) and pigments (UST E-3 and UST E-4). The USTs and the impacted soil surrounding the USTs were removed from the site in 1991. After tank removal activities had been completed, Weston installed groundwater monitoring well MW-19 in the area immediately adjacent to the excavation to determine whether the underlying groundwater had been impacted by previous operations conducted at the facility. The results of the groundwater sampling activities conducted at that time did not identify the presence of volatile organic compounds (VOCs) at concentrations above the method detection limits with the exception of 2-Butanone. However, subsequent groundwater sampling events conducted in February and June 1995 identified the



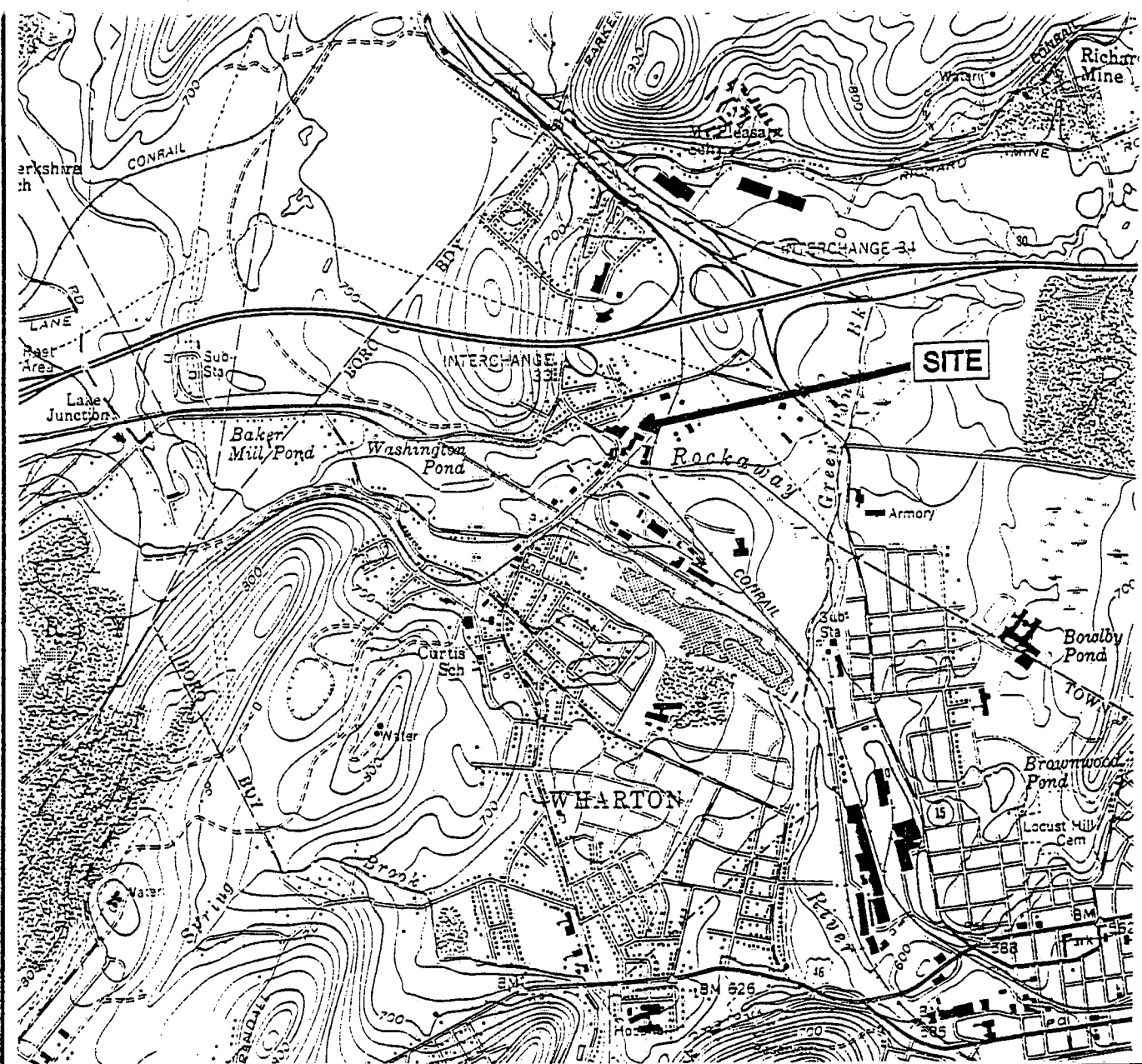
presence of benzene, toluene, ethylbenzene, and xylene at concentrations exceeding the NJDEP Groundwater Quality Standards stipulated in the Consent Order.

Based on these results, Weston installed nine temporary groundwater monitoring wells (B-1 through B-9) in the area surrounding the former UST excavation in 1996. The results of chemical analyses performed on the groundwater samples (BW-1 through BW-8), collected from the temporary monitoring wells, identified the presence of VOCs at concentrations similar to those identified in monitoring well MW-19 in 1995. The results of chemical analyses are summarized in Appendix B.

1.3 Purpose and Scope

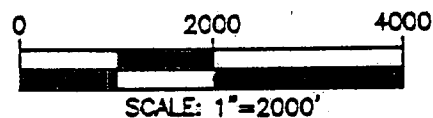
The purpose of this report is to address NJDEP/USEPA concerns regarding the extent of VOC-impacted groundwater in the vicinity of the MW-19 area. The scope of work included the advancement of soil boring, the installation of additional groundwater monitoring wells, and soil and groundwater sampling activities to further define the impacted area. Due to the close proximity of the associated Hot Spot-1 area to the MW-19 area, the scope of work requested by NJDEP for each area was combined so that both investigation areas could be addressed using the same monitoring wells. The combined scope was verbally approved by NJDEP during the telephone conversation with Steve Chillson (RMT) and Gwen Zervas (NJDEP), on February 16, 1998. The scope of work conducted by RMT included the following tasks:

- Installation of the four permanent groundwater monitoring wells (MW-19-1 through MW-19-4) and one temporary groundwater monitoring well (MW-19-5).
- Measurement of groundwater elevations in the new and existing groundwater monitoring wells in the vicinity of the former USTs.
- Chemical analysis of groundwater samples collected from new and existing groundwater monitoring wells.



QUADRANGLE LOCATION

SOURCE: BASE MAP FROM DOVER,
NEW JERSEY, 7.5 MINUTE USGS
QUADRANGLE, DATED 1981.



SITE LOCATOR MAP LE CARPENTER WHARTON, NEW JERSEY

RMT INC.

DWN. BY: DFL

APPROVED BY:

DATE: APRIL 1998

PROJ. # 3868.02

FILE # 38680208

FIGURE 1

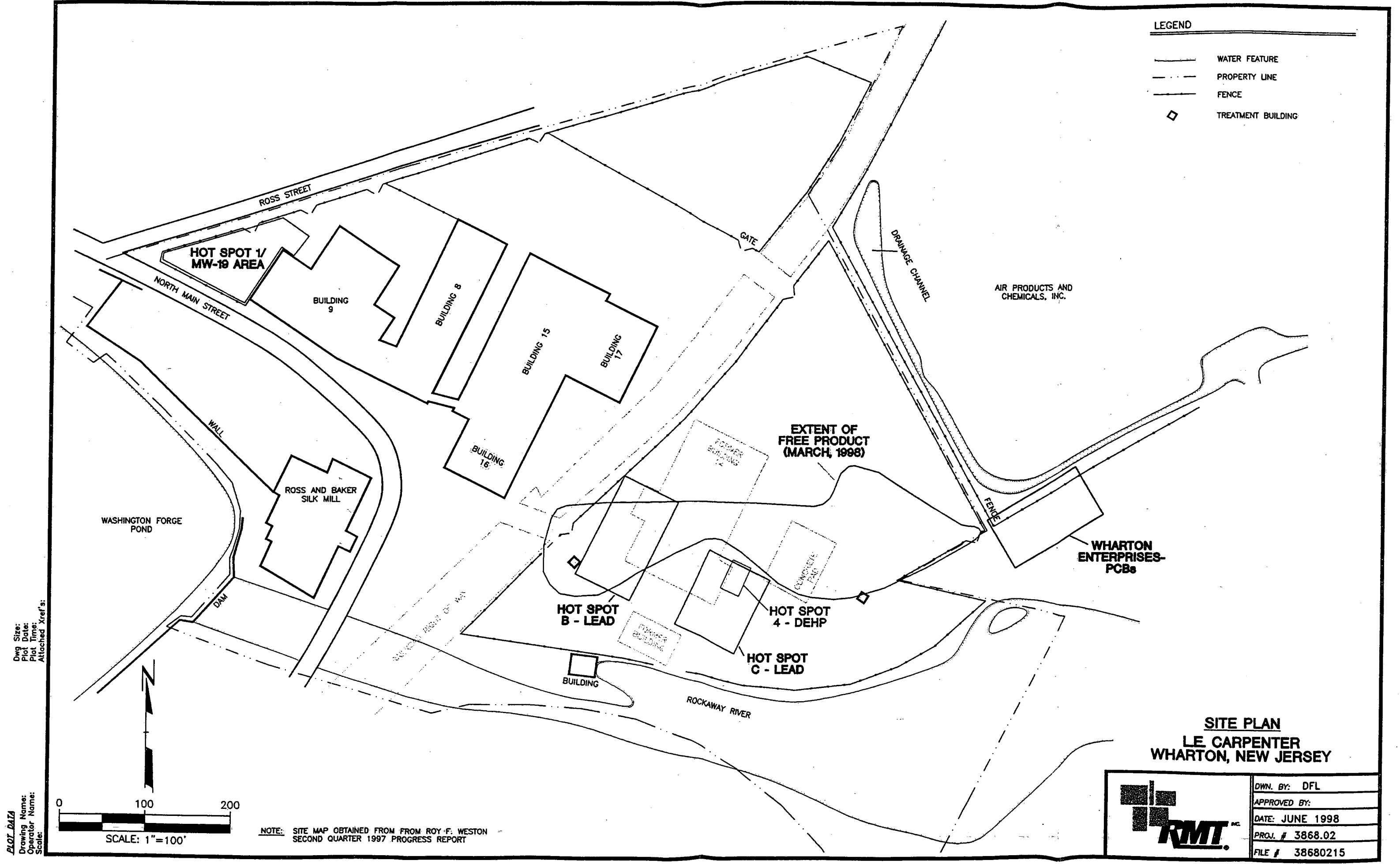


FIGURE 2

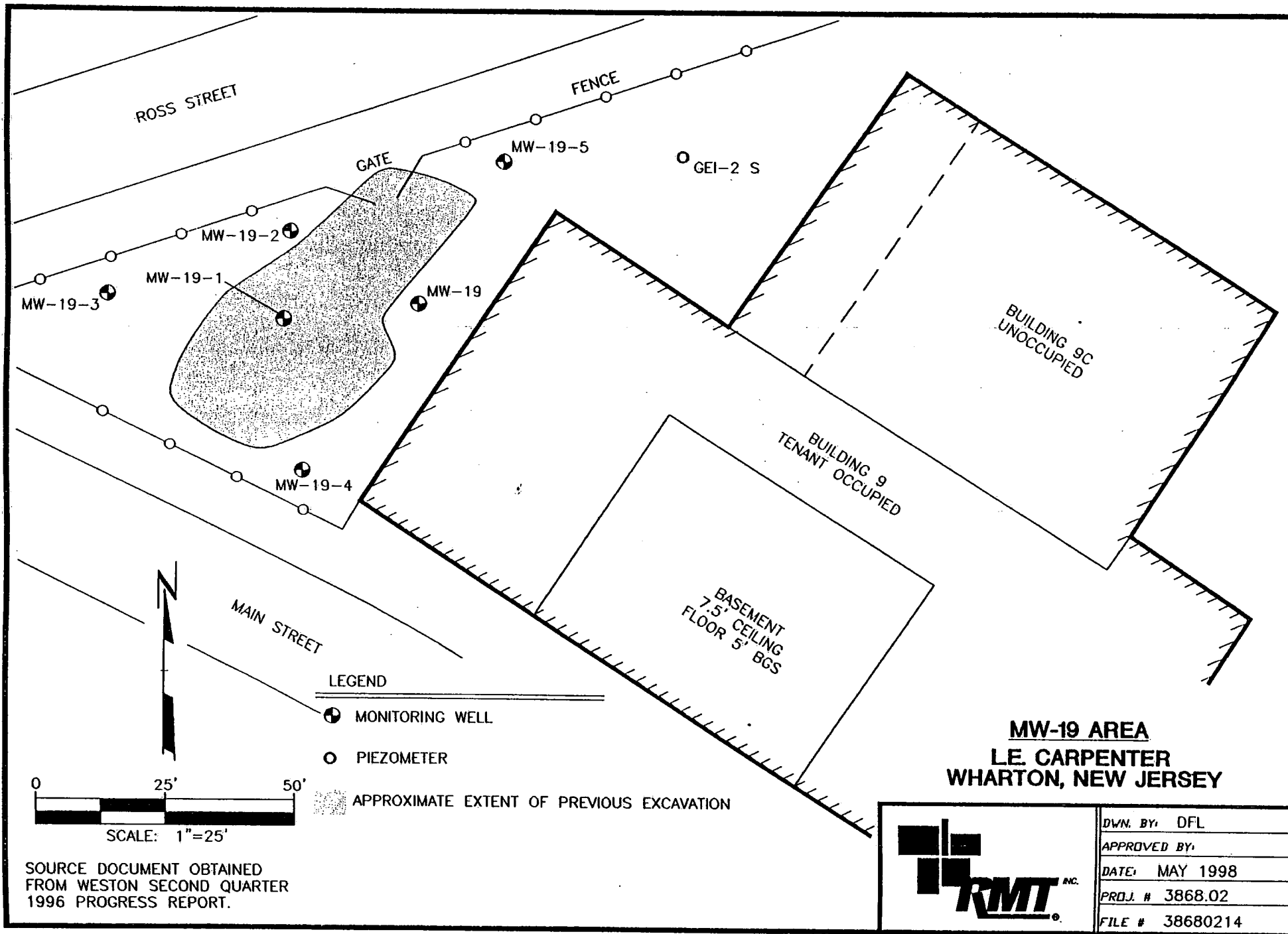


FIGURE 3



Section 2

Methods and Procedures

Field activities were conducted by RMT during the weeks of February 20 and 27, 1998, and included the installation of five groundwater monitoring wells (MW-19-1, MW-19-2, MW-19-3, MW-19-4, MW-19-5) in the area surrounding the former USTs in accordance with the NJDEP letter dated January 20, 1998. Prior to conducting the field activities, RMT obtained monitoring well installation permits, located on-site utilities, and notified the utilities companies that drilling activities were being conducted at the subject site. The methods and procedures used to conduct the field activities are presented in the following sections and the locations of the groundwater monitoring wells are presented in Figure 3. Copies of the monitoring well installation permits are included in Appendix C.

2.1 Soil Boring Activities

Soil borings MW-19-1 through MW-19-5 were advanced to a depth of approximately 18 feet bgs using rotary air hammer drilling methods. Continuous split spoon sampling was conducted during the advancement of soil borings MW-19-1 and MW-19-2 to further characterize the stratigraphy of the underlying soil and determine the appropriate monitoring well screen intervals. The soil samples were examined in the field by a geologist and classified using the United Soil Classification System (USCS). In addition, each sample was examined for indications of staining and/or contamination. All soil boring activities were conducted by Aquifer Drilling and Testing, of Trenton, New Jersey. Copies of the soil boring logs are presented in Appendix C.

2.2 Monitoring Well Installation Activities

Once soil boring activities had been completed, monitoring wells were installed in each soil boring. Monitoring wells MW-19-1 through MW-19-4 were constructed of 10-foot-long, 4-inch-diameter stainless steel screen and stainless steel riser. The temporary monitoring well, MW-19-5, was constructed using a 10-foot long 2-inch diameter PVC screen and riser. Each monitoring well extends to a depth of approximately 18 feet bgs and is screened between 6 to 15.5 feet bgs. A medium-grained sand was used as a filter pack around each monitoring well screen and extended above the top of the screened interval approximately 2 feet.

Approximately 2 feet of bentonite was placed above the sand as a seal to prevent infiltration of the overlying cement-bentonite backfill into the filter pack. The monitoring wells were completed by installing a protector pipe and lock. Once groundwater monitoring well



installation activities had been completed, each well was surveyed to determine groundwater elevations and flow direction.

The monitoring well installation activities were conducted by Aquifer Drilling and Testing of Trenton, New Jersey, and site surveying activities were conducted by Recon, Inc., of Whippang, New Jersey. Copies of the groundwater monitoring well construction details, monitoring wells survey maps, and certifications are provided in Appendix C.

2.3 Monitoring Well Development Activities

No sooner than 24 hours after monitoring well construction activities were completed, each monitoring well was developed by bailing the sediments present in the base of the well, surging the wells with a surge block, and purging nine well volumes using a displacement pump, until the purge water was relatively clear and sediment-free. The pH, temperature, turbidity, conductivity, and volume of water removed during development was recorded during the monitoring well development activities. Copies of the monitoring well development records are included in Appendix C.

2.4 Groundwater Sampling Activities

Groundwater sampling activities were performed by Envirotech Research, Inc., on March 3, March 25, and April 10, 1998, and included obtaining groundwater samples from monitoring wells MW-19, MW-19-1 through MW-19-5 and GEI-2S. Prior to initiating the groundwater sampling activities, the depth to groundwater was measured using a electronic water level indicator. Each monitoring well was then slow purged by removing three to five well volumes of groundwater using a peristaltic pump. The temperature, pH, conductivity, and turbidity of the extracted groundwater was measured and recorded throughout the purging activities. Once the monitoring well had been sufficiently purged, groundwater samples were collected from each monitoring well using a Teflon® bailer in accordance with procedures presented in the NJDEP Field Sampling Procedures Manual dated May 1992. Monitoring well data collected during sampling is displayed in Appendix D.

2.5 Investigation Derived Wastes

Drill cuttings, monitoring well development water, purge water, and decontamination fluids were contained in 55-gallon DOT approved drums, labeled with the date, generators name, site location and source, and stored at the L.E. Carpenter facility pending chemical analyses and disposal. A copy of the waste disposal manifest will be submitted once the investigation derived waste are removed from the site.



Section 3

Results

3.1 Site Stratigraphy

The stratigraphy in the vicinity of the MW-19 area consist primarily of fine- to coarse-grained sand and gravel with some silt, cobbles and boulders. Soil borings MW-19-3 through MW-19-5 were not sampled; however, based on the soil cuttings generated during the drilling activities, no changes in the stratigraphy were observed. These results are consistent with documented soil characteristics observed by Weston during previous soil boring activities conducted in the MW-19 area.

3.2 Groundwater Flow Direction

The static water level measurements collected during the groundwater sampling activities were used to determine the localized hydrogeologic conditions in the vicinity of the MW-19 area. The water table elevations indicate that shallow groundwater in this area of the site is flowing in a northeastern direction as displayed on Figure 4. Groundwater is flowing under a relatively flat hydraulic gradient of approximately 0.006 ft/ft. The groundwater flow direction appears to be consistent with shallow water table flow patterns observed at the site.

3.3 Chemical Analyses of Groundwater

Groundwater samples collected from monitoring wells MW-19, MW-19-1 through MW-19-5, and GEI-2S were chemically analyzed for the presence of VOCs using EPA SW-846 Method 602. The results of the chemical analyses performed on groundwater samples collected from monitoring wells MW-19, MW-19-1, MW-19-2 and MW-19-5 identified the presence of toluene and xylene at concentrations exceeding the NJDEP Groundwater Quality Standards. The results of the chemical analyses performed on all other groundwater samples did not identify the presence of toluene and xylene at concentrations exceeding the NJDEP Groundwater Quality Standards. The results of the chemical analyses are summarized in Figure 5. All chemical analyses were performed by Envirotech Research, Inc., of Edison, New Jersey. A copy of the laboratory report and chain-of-custody form is included in Appendix E.

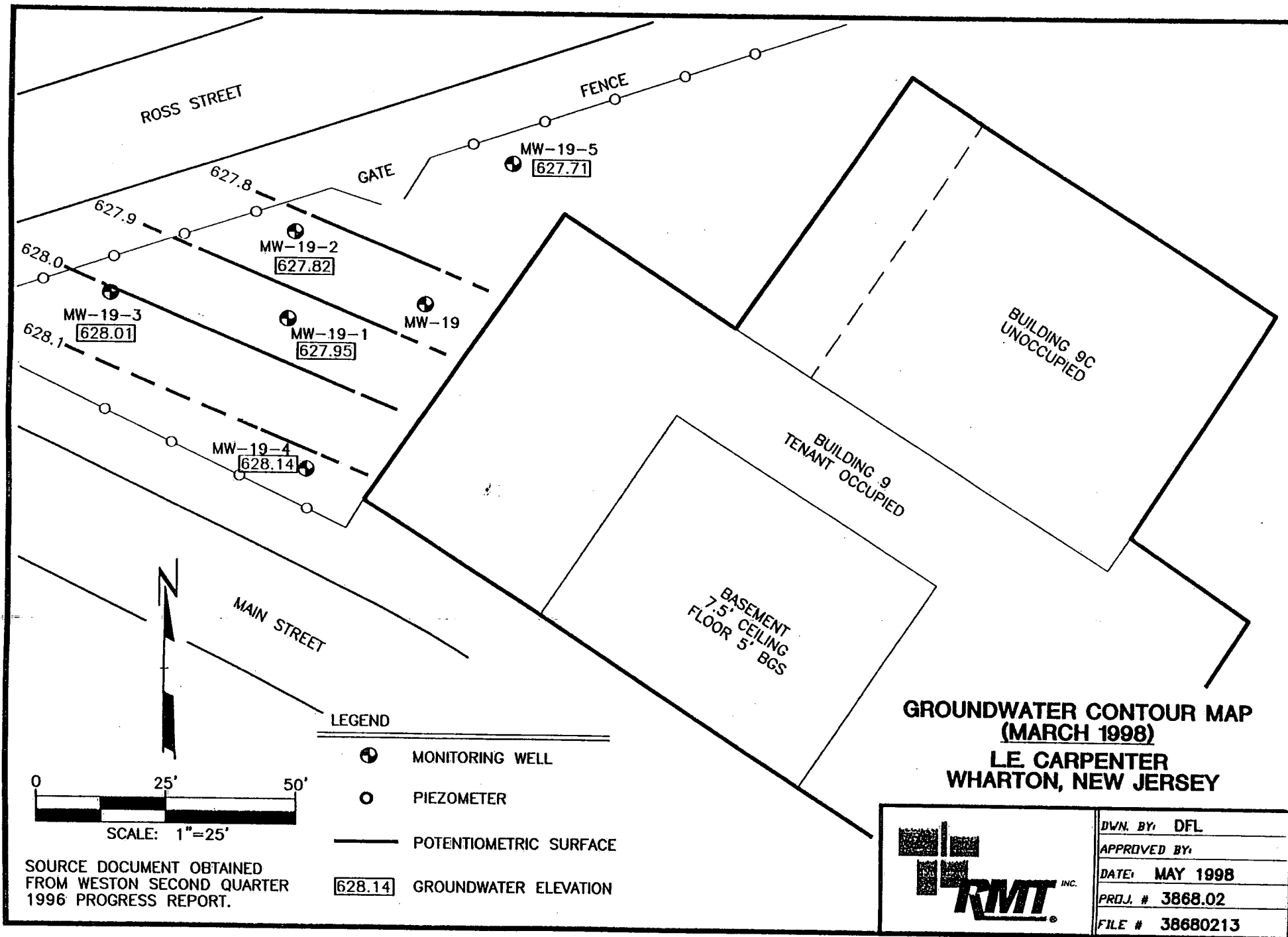


FIGURE 4



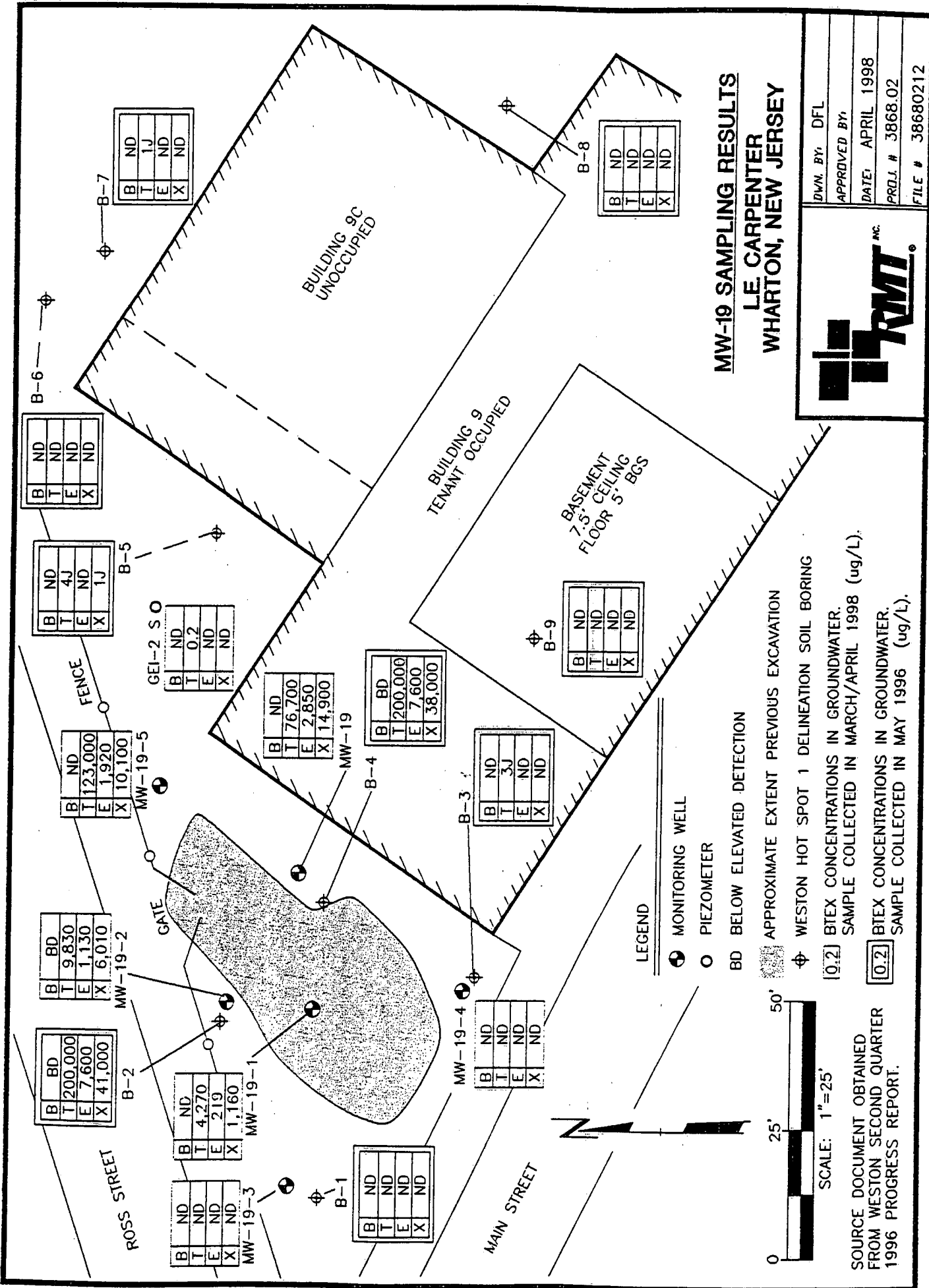
3.4 Summary

The results of the groundwater sampling activities identified the presence of VOCs within and downgradient of the former UST excavation at concentrations that exceeded the NJDEP Groundwater Quality Standards. However, these results were also compared to existing groundwater analytical data obtained from temporary wells installed in August 1996. As indicate in Table 1 and displayed on Figure 5, concentrations of toluene, ethylbenzene, and xylenes in groundwater samples collected from the monitoring well MW-19-2 were compared with those from the temporary well B-2 (located approximately 4 ft from MW-19-2), and the results from monitoring well MW-19 were compared to those from temporary well B-4 (located approximately 4 ft from MW-19). As can be seen, the comparison indicates that the contaminant concentrations have significantly decreased over time. These results indicate that natural attenuation appears to have occurred within and surrounding the MW-19 area.

The term "natural attenuation" refers to naturally-occurring processes in soil and groundwater environments that act without engineering intervention to reduce the mass, toxicity, mobility, and concentration of contaminants in those media. Natural attenuation depends upon natural physical processes, such as dispersion, dilution, and adsorption, to dissipate constituents and biodegradation to chemically transform constituents to achieve cleanup goals.

Table 1
Comparison of Groundwater Chemical Analyses - 1996 vs 1998

Parameter (µg/L)	MW-19-2/B-2 Area		MW-19/B-4 Area	
	May 1996	April 1998	May 1996	April 1998
Toluene	200,000	9,830	200,000	76,700
Ethylbenzene	7,600	1,130	7,600	2,850
Xylene	41,000	6,010	38,000	14,900



MW-19 SAMPLING RESULTS **LE. CARPENTER** **WHARTON, NEW JERSEY**



DWN. BY:	DFL
APPROVED BY:	
DATE:	APRIL 1998
PROJ. #	3868.02
FILE #	38680212

FIGURE 5

SOURCE DOCUMENT OBTAINED FROM WESTON SECOND QUARTER 1996 PROGRESS REPORT.



Section 4

References

RMT, Inc., 1998. Proposal for Monitoring Well Installation.

Roy F. Weston, Inc., 1992. Final Supplemental Remedial Investigation Addendum for L.E. Carpenter and Company.

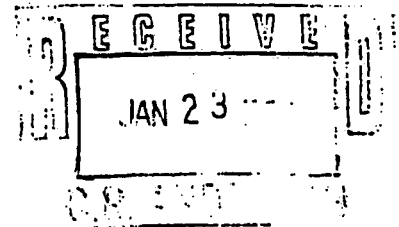
Roy F. Weston, Inc. 1996. Second Quarter Progress Report L.E. Carpenter Site, Wharton, New Jersey.

State of New Jersey, Department of Environmental Protection, January 20, 1998. Letter regarding the L.E. Carpenter Superfund Site, Wharton, Morris County.



Appendix A

USEPA and NJDEP letter dated January 20, 1998



State of New Jersey

Christine Todd Whitman
Governor

Department of Environmental Protection

Robert C. Shinn, Jr.
Commissioner

Mr. Cristopher Anderson
Director, Environmental Affairs
L.E. Carpenter & Company
200 Public Square
Suite 36-5000
Cleveland, OH 44114-2304

JAN 20 1998

Dear Mr. Anderson:

Re: L.E. Carpenter Superfund Site
Wharton, Morris County

The New Jersey Department of Environmental Protection (Department) and the U.S. Environmental Protection Agency (EPA) have reviewed the Second Quarter Progress Report dated August 1996. This document provided information regarding historical site information regarding the lead levels (Inorganic Hot Spots B and C) as well as information about Hot Spots 1 and 4 and the MW-19 area. Comments are presented below:

1. Inorganic Hot Spots B and C - The document states that the levels of lead in the soil that exist on site are a result of historical mining activities, and not attributable to L.E. Carpenter activities. While the Department and EPA believe that these lead levels in the soil may be at background concentrations that exist in this area, more information is needed. Therefore, it is requested that L.E. Carpenter obtain twenty samples from off-site locations and analyze them for lead in order that those results can be compared to the levels found on the L.E. Carpenter property. Twenty samples are required so that the results can be considered statistically significant.

Alternatively, L.E. Carpenter can develop a revised risk assessment to determine the risk associated with leaving the lead contaminated soils on site as well as a focused feasibility study that would address the soil capping alternative for the lead contaminated soils. In this case, the lead contaminated soils would only be allowed to be left on site if the risk posed is within the acceptable range of 10^{-4} to 10^{-6} and all soils over 600 ppm would be capped with a soil cover.

2. Hot Spot 1 - The argument that DEHP in soils at Hot Spot 1 is due to ground water smearing is very weak. DEHP is not fully delineated in this area, therefore, it is requested that additional well points be installed at B-1, B-3, and B-4 and analyzed for DEHP.
3. Hot Spot 4 - The recommendation for additional limited excavation is acceptable, however post-excavation samples are required on the southeast

side of the excavation unless the planned excavation is continued to points 4-DEL-3 and 4-DEL-7.

4. MW-19 Area - The proposed delineation plan for MW-19 area is acceptable.

Please feel free to contact me at (609) 633-7261 if you have any questions.

Sincerely,



Gwen Barunas, P.E.

Case Manager

Bureau of Federal Case Management

c: Stephen Cipot, USEPA
John Prendergast, BEERA
George Blyskun, BGWPA



Appendix B

Summary Tables of Historical Analytical Data

TABLE 1
VOLITILE ORGANICS RESULTS
GROUNDWATER SAMPLING
ROUNDS 1,2,3, AND 4 (ug/L)

	MW-19		MW-20		MW-21		MW-22		MW-23		MW-24		MW-25	
	3	MEAN	3	MEAN	3	MEAN	4	MEAN	4	MEAN	4	MEAN	4	MEAN
	7/3/91		7/3/91		7/3/91		2/19/92		2/19/92		2/19/92		2/19/92	
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	30	30	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	2J	2J	35	35	ND	ND
1,2-Dichloroethene (total)	ND	ND	ND	ND	ND	ND	ND	ND	3J	3J	36	36	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND	3200	3200	ND	ND	ND	ND	ND	ND
Heptane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	160B	160B	8B	8B	56B	56B	7B	7B
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	450	450	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	730	730	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	28	28	ND	ND
Xylenes (total)	ND	ND	10	10	ND	ND	18000	18000	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2 Trichloro-1,1,2-trifluoroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MEK

6800

ACETONE

83

1J

J - ESTIMATED VALUE

ND - NOT DETECTED

NA - NOT ANALYZED

B - DETECTED IN BLANK

NOTE - ONLY THE ROUNDS SAMPLED ARE SHOWN ON THIS TABLE

MEAN = ARITHMETIC MEAN

TABLE 4-1
VOLATILE ORGANIC COMPOUND LABORATORY ANALYTICAL RESULTS
GROUNDWATER SUMMARY TABLE
L.E. CARPENTER
WHARTON, NEW JERSEY

Sample ID Lab Sample Number Sampling Date Dilution Factor Units	NJDEP Class IIA Groundwater Criteria (ug/l)	MW-13S 20771 02/23/95 1.0 ug/l	MW-27 20772 02/23/95 1.0 ug/l	FB_2-23 20773 02/23/95 1.0 ug/l	TB_2-23 20774 02/22/95 1.0 ug/l	MW-17S 20784 02/24/95 1.0 ug/l	MW-18S 20785 02/24/95 1.0 ug/l	MW-18I 20786 02/24/95 1.0 ug/l	GEI-2I 20829 02/24/95 1.0 ug/l	GEI-2S 20830 02/24/95 25.0 ug/l
PARAMETER:										
VOLATILE COMPOUNDS										
Chloromethane	15 (1)	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	16 U
Bromomethane	10	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	22 U
VinylChloride	5	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	18 U
Chloroethane	NA	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	18 U
MethyleneChloride	2	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	23 U
Trichlorofluoromethane	NA	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	7.0 U
1,1-Dichloroethene	2	0.7	0.4 U	0.4 U	0.4 U	0.8	0.3 U	0.3 U	0.3 U	9.8 U
1,1-Dichloroethane	35 (1)	1.6	0.2 U	0.2 U	0.2 U	0.4 U	0.4 U	0.4 U	0.4 U	4.0 U
trans-1,2-Dichloroethene	50 (1)	0.4 U	0.4 U	0.4 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	10 U
cis-1,2-Dichloroethene	5 (1)	3.0	1.0 U	1.0 U	1.0 U	0.4 U	0.4 U	0.4 U	0.4 U	25 U
Chloroform	6	0.3 U	0.3 U	0.3 U	0.3 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0 U
1,2-Dichloroethane	2	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	6.5 U
1,1,1-Trichloroethane	15 (1)	0.8 U	0.8 U	0.8 U	0.8 U	0.3 U	0.3 U	0.3 U	0.3 U	19 U
CarbonTetrachloride	2	0.1 U	0.1 U	0.1 U	0.1 U	0.8 U	0.8 U	0.8 U	0.8 U	3.2 U
Bromodichloromethane	1	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	6.2 U
1,2-Dichloropropane	1	0.3 U	0.3 U	0.3 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	8.5 U
cis-1,3-Dichloropropene	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.3 U	0.3 U	0.3 U	0.3 U	3.2 U
Trichloroethene	1	0.6	0.3 U	0.3 U	0.3 U	0.1 U	0.1 U	0.1 U	0.1 U	8.5 U
Dibromochloromethane	10	0.1 U	0.1 U	0.1 U	0.1 U	0.4	0.3 U	0.3 U	0.3 U	8.5 U
1,1,2-Trichloroethane	3	0.3 U	0.3 U	0.3 U	0.3 U	0.1 U	0.1 U	0.1 U	0.1 U	3.8 U
Benzene	1	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	7.0 U
trans-1,3-Dichloropropene	NA	0.7 U	0.7 U	0.7 U	0.7 U	0.3 U	0.3 U	0.3 U	0.3 U	8.2 U
2-ChloroethylVinylEther	NA	0.4 U	0.4 U	0.4 U	0.4 U	0.7 U	0.7 U	0.7 U	0.7 U	18 U
Bromoform	4	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.4 U	0.4 U	0.4 U	9.0 U
Tetrachloroethane	1	0.3 U	0.3 U	0.3 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	5.8 U
1,1,2,2-Tetrachloroethane	2	0.5 U	0.5 U	0.5 U	0.5 U	0.3 U	0.3 U	0.3 U	0.3 U	8.8 U
Toluene	500 (1)	0.3 U	0.3 U	0.3 U	0.3 U	0.5 U	0.5 U	0.5 U	0.5 U	13 U
Chlorobenzene	2 (1)	0.3 U	0.3 U	0.3 U	0.3 U	0.3	0.3 U	0.3 U	0.4	1500
Ethylbenzene	350 (1)	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	7.5 U
Xylene(Total)	20 (1)	1.0 U	1.0 U	1.0 U	1.0 U	0.6	0.3 U	0.3 U	0.3 U	46
Total Target Conc. VOC(s)		5.9	0	0	0	1.9	1.0 U	1.0 U	1.0 U	380
						4	0	0	1.3	1926

NOTES:

Samples analyzed by Method 624 plus xylenes.

(1) Discharge criteria established in the ROD.

ug/l denotes microgram per liter.

Sample MW-27 is a duplicate of MW-111.

TB_2-23 (20774) was prepared on 02/22/95, and accompanied samples collected on 02/23/95.

U denotes not detected.

NA denotes not applicable.

* Values listed reflect the combined standards for the cis and trans isomers of 1,3-Dichloropropene.

TABLE 4-1
VOLATILE ORGANIC COMPOUND LABORATORY ANALYTICAL RESULTS
GROUNDWATER SUMMARY TABLE
L.E. CARPENTER
WHARTON, NEW JERSEY

Sample ID	Sample Number	Sampling Date	Dilution Factor	Units	NJDEP Class (A) Groundwater Criteria (ug/l)	MW-19 20831 02/24/95 2000.0 ug/l	FB_2-23 20787 02/24/95 1.0 ug/l	TB_2-23 20788 02/23/95 1.0 ug/l	MW-18S 20910 02/27/95 1.0 ug/l	MW-16I 20911 02/27/95 1.0 ug/l	MW-8 20912 02/27/95 1.0 ug/l	MW-9 20913 02/27/95 1.0 ug/l	Field_Blank 20919 02/27/95 1.0 ug/l	Trip_Blank 20920 02/27/95 1.0 ug/l
PARAMETER:														
VOLATILE COMPOUNDS														
Chloromethane														
Bromomethane	15 (1)					1300 U								
Vinyl Chloride	10					1800 U	0.7 U	0.7 U	0.7 U					
Chloroethane	5					1400 U	0.9 U	0.9 U	0.9 U					
Methylene Chloride	NA					1500 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
Trichlorofluoromethane	2					1900 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
1,1-Dichloroethane	NA					560 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U
1,1-Dichloroethane	2					780 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
trans-1,2-Dichloroethane	35 (1)					320 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
cis-1,2-Dichloroethane	50 (1)					800 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chloroform	5 (1)					2000 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,2-Dichloroethane	8					640 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane	2					520 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Carbon Tetrachloride	15 (1)					1500 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Bromodichloromethane	2					260 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
1,2-Dichloropropane	1					500 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
cis-1,3-Dichloropropane	1					680 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Trichloroethene	NA					260 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Dibromochloromethane	1					680 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,2-Trichloroethane	10					300 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Benzene	3					580 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
trans-1,3-Dichloropropane	1					660 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Chloroethyl Vinyl Ether	NA					1400 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Perchloroform	NA					720 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
Trichloroethene	4					460 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,2,2-Tetrachloroethane	1					700 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Toluene	2					1000 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Chlorobenzene	500 (1)					11000 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene	2 (1)					600 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Styrene	350 (1)					1700 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
None (Total)	20 (1)					10000 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Target Conc. VOC(s)						121700	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

NOTES:

Samples analyzed by Method 624 plus xylenes.

Discharge criteria established in the ROD.

U denotes microgram per liter.

Sample MW-19 was also analyzed for 2-Butanone (Not Detected).

Sample 2-23 (20787) was misidentified in the field. It was prepared on 02/24/95 for that day of sampling.

Sample 2-23 (20788) was misidentified in the field. It was prepared on 02/23/95 and accompanied samples collected on 02/24/95.

Sample Trip Blank was prepared on 02/27/95, and accompanied samples collected on 02/27/95.

Sample Field Blank was prepared on 02/27/95 for that day of sampling.

Notes not detected.

Notes not applicable.

Notes listed reflect the combined standards for the cis and trans isomers of 1,3-Dichloropropane.

TABLE 2-9 (continued)
VOLATILE ORGANIC COMPOUND LABORATORY ANALYTICAL RESULTS
GROUNDWATER SUMMARY TABLE
L.E. CARPENTER
WHARTON, NEW JERSEY

Sample ID Lab Sample Number Sampling Date Dilution Factor Units	NJDEP Class IIA Groundwater Criteria (ug/l)	MW-16I 25802 06/13/95 1.0 ug/l	MW-16S 25803 06/13/95 1.0 ug/l	MW-19 25871 06/14/95 100.0 ug/l	MW-20 25872 06/14/95 1.0 ug/l	MW-25 25873 06/14/95 1.0 ug/l	6-14-FB01 25874 06/14/95 1.0 ug/l	6-14-TB01 25875 06/13/95 1.0 ug/l
VOLATILE COMPOUNDS								
Chloromethane	15 (1)	NR	NR	93 U	0.9 U	NR	0.9 U	0.9 U
Bromomethane	10	NR	NR	27 U	0.3 U	NR	0.3 U	0.3 U
VinylChloride	5	NR	NR	39 U	0.4 U	NR	0.4 U	0.4 U
Chloroethane	NA	NR	NR	100 U	1.0 U	NR	1.0 U	1.0 U
MethyleneChloride	2	NR	NR	23 U	0.2 U	NR	0.2 U	0.2 U
Trichlorofluoromethane	NA	NR	NR	55 U	0.6 U	NR	0.6 U	0.6 U
1,1-Dichloroethane	2	NR	NR	31 U	0.3 U	NR	0.3 U	0.3 U
1,1-Dichloroethane	35 (1)	NR	NR	30 U	0.3 U	NR	0.3 U	0.3 U
trans-1,2-Dichloroethane	50 (1)	NR	NR	100 U	1.0 U	NR	1.0 U	1.0 U
cis-1,2-Dichloroethane	5 (1)	NR	NR	22 U	0.2 U	NR	0.2 U	0.2 U
Chloroform	6	NR	NR	500	0.2 U	NR	0.2 U	0.2 U
1,2-Dichloroethane	2	NR	NR	16 U	0.2 U	NR	0.2 U	0.2 U
1,1,1-Trichloroethane	15 (1)	NR	NR	19 U	0.2 U	NR	0.2 U	0.2 U
CarbonTetrachloride	2	NR	NR	46 U	0.5 U	NR	0.5 U	0.5 U
Bromodichloromethane	1	NR	NR	33 U	0.3 U	NR	0.3 U	0.3 U
1,2-Dichloropropane	1	NR	NR	550	0.4 U	NR	0.4 U	0.4 U
cis-1,3-Dichloropropene	NA	NR	NR	23 U	0.2 U	NR	0.2 U	0.2 U
Trichloroethene	1	NR	NR	43 U	0.4 U	NR	0.4 U	0.4 U
Dibromochloromethane	10	NR	NR	150	0.2 U	NR	0.2 U	0.2 U
1,1,2-Trichloroethane	3	NR	NR	31 U	0.3 U	NR	0.3 U	0.3 U
Benzene	1	NR	NR	46 U	0.6 U	NR	0.6 U	0.6 U
trans-1,3-Dichloropropene	NA	0.10 U	0.10 U	30 U	0.3 U	NR	0.3 U	0.3 U
2-ChloroethylVinylEther	NA	NR	NR	38	0.1 U	NR	0.1 U	0.1 U
Bromoform	4	NR	NR	33 U	0.3 U	NR	0.3 U	0.3 U
Tetrachloroethene	1	NR	NR	140000	0.2 U	NR	0.2 U	0.2 U
1,1,2,2-Tetrachloroethane	2	NR	NR	130	0.1 U	NR	0.1 U	0.1 U
Toluene	500 (1)	0.14 U	0.14 U	3400	0.2 U	NR	0.2 U	0.2 U
Chlorobenzene	2 (1)	NR	NR	17000	1.0 U	NR	1.0 U	1.0 U
Ethylbenzene	350 (1)	0.14 U	0.14 U	620	0.2 U	NR	0.2 U	0.2 U
Xylene(Total)	20 (1)	0.50 U	0.50 U		1.0 U	NR	1.0 U	1.0 U
2-Butanone	NA	NR	NR		5.0 U	NR	5.0 U	5.0 U
Total Confident Conc. VOA's (s)		0	0	162488	0	0	0.2	0

NOTES:

All samples analyzed by Method 602, except MW-19 and MW-20 which were analyzed by Method 624.
ug/l denotes microgram per liter.
U denotes not detected.

NR denotes analysis Not Run.

6-14-TB01 (25875) was prepared on 06/13/95, and accompanied samples collected on 06/14/95.
• Values listed reflect the combined standards for the cis and trans isomers of 1,3-Dichloropropene.

Table 3-3
Analytical Results Summary For Groundwater
Volatile Organic Compounds (ug/l)
L.E. Carpenter, Wharton, New Jersey
MW-19 Delineation

Sample ID Lab Sample ID Sample Date Units	BW-1 9605L188-013 05/10/96 ug/L	BW-2 9605L188-011 05/10/96 ug/L	BW-3 9605L188-010 05/10/96 ug/L	BW-4 9605L215-008 05/13/96 ug/L	BW-5 9605L215-011 05/13/96 ug/L	BW-6 9605L149-012 05/09/96 ug/L	BW-7 9605L149-011 05/09/96 ug/L	BW-8 9605L149-010 05/09/96 ug/L	NJDEP GROUNDWATER QUALITY CRITERIA* (ug/L)
PARAMETERS:									
Chloromethane	5 U	5000 U	5 U	5000 U	5 U	5 U	5 U	5 U	
Vinyl chloride	5 U	5000 U	5 U	5000 U	5 U	5 U	5 U	5 U	30
Bromomethane	5 U	5000 U	5 U	5000 U	5 U	5 U	5 U	5 U	5
Chloroethane	5 U	5000 U	5 U	5000 U	5 U	5 U	5 U	5 U	10
1,1-Dichloroethene	2 U	2000 U	2 U	2000 U	2 U	2 U	2 U	2 U	NLE
Acetone	5 U	5000 U	5 U	10000 B	24 B	5 U	30	12	2
Carbon Disulfide	5 U	5000 U	5 U	5000 U	5 U	5 U	5 U	5 U	700
Methylene Chloride	2 U	2000 U	2 U	2000 U	2 U	2 U	2 U	2 U	NLE
1,2-Dichloroethene (total)	5 U	5000 U	5 U	5000 U	5 U	5 U	5 U	5 U	2
1,1-Dichloroethane	5 U	5000 U	5 U	5000 U	5 U	5 U	5 U	5 U	10
2-Butanone	5 U	5000 U	5 U	5000 U	64	5 U	5 U	5 U	70
Chloroform	5 U	5000 U	5 U	5000 U	5 U	5 U	5 U	5 U	300
1,1,1-Trichloroethane	5 U	5000 U	5 U	5000 U	5 U	5 U	5 U	5 U	6
Carbon Tetrachloride	2 U	2000 U	2 U	2000 U	2 U	2 U	2 U	2 U	30
Benzene	1 U	1000 U	1 U	1000 U	1 U	1 U	1 U	1 U	2
1,2-Dichloroethane	2 U	2000 U	2 U	2000 U	2 U	2 U	2 U	2 U	1
Trichloroethane	1 U	1000 U	1 U	1000 U	1 U	1 U	1 U	1 U	2
1,2-Dichloropropane	1 U	1000 U	1 U	1000 U	1 U	1 U	1 U	1 U	1
Bromodichloromethane	1 U	1000 U	1 U	1000 U	1 U	1 U	1 U	1 U	1
cis-1,3-Dichloropropene	5 U	5000 U	5 U	5000 U	5 U	5 U	5 U	5 U	1
4-Methyl-2-pentanone	5 U	5000 U	5 U	5000 U	190	5 U	5 U	5 U	5
Toluene	5 U	200000	3 J	200000	4 J	5 U	1 J	5 U	400
trans-1,3-Dichloropropene	5 U	5000 U	5 U	5000 U	5 U	5 U	5 U	5 U	1000
1,1,2-Trichloroethane	3 U	3000 U	3 U	3000 U	3 U	3 U	3 U	3 U	7
Tetrachloroethene	1 U	1000 U	1 U	1000 U	1 U	1 U	1 U	1 U	3
2-Hexanone	5 U	5000 U	5 U	5000 U	5 U	5 U	5 U	5 U	1
Dibromochloromethane	5 U	5000 U	5 U	5000 U	5 U	5 U	5 U	5 U	NLE
Chlorobenzene	4 U	4000 U	4 U	4000 U	4 U	4 U	4 U	4 U	10
Ethylbenzene	5 U	7600	5 U	7600	5 U	5 U	5 U	5 U	5
Styrene	5 U	5000 U	5 U	5000 U	5 U	5 U	5 U	5 U	700
Bromoform	4 U	4000 U	4 U	4000 U	4 U	4 U	4 U	4 U	100
1,1,2,2-Tetrachloroethane	2 U	2000 U	2 U	2000 U	2 U	2 U	2 U	2 U	4
Xylene (total)	5 U	1000	5 U	138000	1 J	5 U	5 U	5 U	2
Total Target VOCs	0	248600	3	245600	259	0	31	12	40
Total TICs	0	0	0	0	0	0	6	0	



Appendix C

Well Permits, Soil Boring/Well Construction Logs, Well Development Information, Survey Maps



LOG OF TEST BORING

BORING NO. MW19-1
SHEET NO. 1 OF 1
PROJECT NO. 3868.03
INSTALLATION 2/17/98
SURFACE ELEV. ---
BOREHOLE DIA. 10 IN.

PROJECT NAME L. E. Carpenter
LOCATION Warton, NJ
CONTRACTOR Aquifer Testing & Drilling
DRILLING METHOD Air Rotary Hammer

SAMPLING NOTES						WELL CONSTR	
INTERVAL		RECOVERY		PID	DEPTH		VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS
NO.	TYPE	N	IN	ppm			
						GRASS/TOPSOIL	
A	SS	27-20 12-8	14	1.0		WELL GRADED SAND WITH SILT AND GRAVEL (SP-SM), brown, moist.	
B	SS	22-12 12-8	6	1.7	5	SAME AS ABOVE	
C	SS	14 100/4	4	0.4		SAME AS ABOVE, cobble in spoon tip.	
D	SS	100/2	3	1.2	10	SAME AS ABOVE, cobble in spoon tip, moist to wet.	
E	SS	50/0	0	---		NO RECOVERY	
F	SS	100/1	2	23		WELL GRADED SAND WITH GRAVEL (SW), brown, wet, hydrocarbon odor.	
G	SS	11-11 5-3	12	0.2	15	POORLY GRADED SAND (SP), very fine grained, red-brown and black lamina in light brown matrix.	
						END OF BORING AT 16 FEET	
GENERAL NOTES						WATER LEVEL OBSERVATIONS	
DATE STARTED <u>2-17-98</u>						WHILE DRILLING <u>9.4 feet</u>	
DATE COMPLETED <u>2-17-98</u>						AT COMPLETION <u>---</u>	
RIG <u>Reach Drill T650W</u>						AFTER DRILLING <u>---</u>	
CREW CHIEF <u>Jeff Jaworski</u>						CAVE-IN: DATE/TIME <u>---</u> DEPTH <u>---</u>	
LOGGED <u>E.M.V.</u> CHECKED <u>S.C.</u>						WATER: DATE/TIME <u>---</u> DEPTH <u>---</u>	



LOG OF TEST BORING

PROJECT NAME L. E. Carpenter

LOCATION Warton, NJ

CONTRACTOR Aquifer Testing & Drilling

DRILLING METHOD Air Rotary Hammer

BORING NO. MW19-2

SHEET NO. 1 OF 1

PROJECT NO. 3868.03

INSTALLATION 2/17/98

SURFACE ELEV. ---

BOREHOLE DIA. 10 IN.

SAMPLING NOTES

INTERVAL		RECOVERY		PID	DEPTH
NO.	TYPE	N	IN	ppm	

VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS

WELL
CONSTR

	SS				
A		9-8 7-8	12	0.0	
	SS				
B		7-9 13-37	4	0.0	
	SS				
C		3-5 5-4	16	0.0	5
	SS				
D		6-5 7-9	14	2.6	
	SS				
E		7-9 14-16	6	0.0	10
	SS				
F		19 50/5	2	0.0	
	SS				
G		6-7 8-9	0	---	
	SS				
H		11-12 15-17	6	71	15

GRASS TOP SOIL

WELL GRADED SAND WITH SILT AND GRAVEL (SW-SM), red-brown.

WELL GRADED SAND WITH GRAVEL (SW), light brown, red-brown at about 3.8 ft, moist.

WELL GRADED SAND WITH SILT AND GRAVEL (SW SM), red-brown, moist, with rootlets.

SAME AS ABOVE

SAME AS ABOVE, moist to wet, cobble in spoon tip.

WELL GRADED SAND WITH GRAVEL (SW), red-brown, wet.

NO RECOVERY

SAME AS ABOVE, gray to black.

END OF BORING AT 16 FEET

GENERAL NOTES

DATE STARTED 2-17-98

DATE COMPLETED 2-17-98

RIG Reach Drill T650W

CREW CHIEF Jeff Jaworski

LOGGED E.M.V. CHECKED S.C.

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽

AT COMPLETION ▽ 9.7 feet

AFTER DRILLING

CAVE-IN: DATE/TIME _____ DEPTH _____

WATER: DATE/TIME _____ DEPTH _____

N31BW 38683 4-10-98

LOG OF TEST BORING

BORING NO. MW-11DR
SHEET NO. 1 OF 5
PROJECT NO. 3868.03
INSTALLATION 2/20/98
SURFACE ELEV. ---
BOREHOLE DIA. 10 IN/6 IN.

PROJECT NAME L. E. Carpenter
LOCATION Warton, NJ
CONTRACTOR Aquifer Testing & Drilling
DRILLING METHOD Air Rotary Hammer

SAMPLING NOTES						WELL CONSTR	
INTERVAL		RECOVERY		PID	DEPTH		VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS
NO.	TYPE	N	IN	ppm			
A	SS	86 100/3	3		5	WELL GRADED SAND WITH GRAVEL (SW), fine to coarse grained sand and gravel, trace silt and clay, gray, wet, hydrocarbon odor.	
B	SS	58 100/3	4		10	LEAN CLAY WITH SAND (CL), little to some gravel, reddish brown.	
C	SS		4			WELL GRADED SAND WITH GRAVEL (SW), fine to coarse grained sand.	
D	SS		6			SAME AS ABOVE	
E	SS				15	SAME AS ABOVE, with trace amounts of silt and clay.	
F	SS		6			WELL GRADED SAND (SW), with trace to little gravel, gray, fine to coarse grained sand.	
G	SS		6		20	SAME AS ABOVE	
H	SS		6			SAME AS ABOVE, black.	
					25	Note: set a six inch I. D. steel casing from ground surface to 18.5 feet below grade.	

GENERAL NOTES		WATER LEVEL OBSERVATIONS	
DATE STARTED	2-16-98	WHILE DRILLING	▽
DATE COMPLETED	2-20-98	AT COMPLETION	▽
RIG	Reach Drill T650W	AFTER DRILLING	▽
CREW CHIEF	Jeff Jaworski	CAVE-IN: DATE/TIME	DEPTH
LOGGED	E.M.V.	WATER: DATE/TIME	DEPTH
CHECKED	S.C.		



LOG OF TEST BORING

PROJECT NAME L. E. Carpenter
LOCATION Warton, NJ
CONTRACTOR Aquifer Testing & Drilling
DRILLING METHOD Air Rotary Hammer

BORING NO. MW-11DR
SHEET NO. 2 OF 5
PROJECT NO. 3868.03
INSTALLATION 2/20/98
SURFACE ELEV. ---
BOREHOLE DIA. 10 IN/6 IN.

SAMPLING NOTES

INTERVAL		RECOVERY		PID	DEPTH
NO.	TYPE	N	IN	ppm	

VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS

WELL
CONSTR

I	SS		10		
J	SS		24		
K	SS		20		
L	SS		16		
M	SS		24		
N	SS		24		

WELL GRADED GRAVEL WITH SAND (GW), fine to coarse gravel, coarse sand.

35

40

SAME AS ABOVE

45

SAME AS ABOVE

50

SAME AS ABOVE

55

POORLY GRADED GRAVEL (GP)

60

SAME AS ABOVE

65

LOG OF TEST BORING

PROJECT NAME L. E. Carpenter
LOCATION Warton, NJ
CONTRACTOR Aquifer Testing & Drilling
DRILLING METHOD Air Rotary Hammer

BORING NO. MW-11DR
SHEET NO. 3 OF 5
PROJECT NO. 3868.03
INSTALLATION 2/20/98
SURFACE ELEV. ---
BOREHOLE DIA. 10 IN/6 IN.

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS	WELL CONSTR
INTERVAL		RECOVERY		PID ppm	DEPTH		
NO.	TYPE	N	IN				
O	SS		18		70	<p>SAME AS ABOVE, with clayey fragments in spoon tip.</p> <p>NOTE: the driller believes that the split spoon samples may be biased with too much gravel due to settling when the mud pump is turned off prior to collecting split spoon sample. All soil description from below 72 feet is from mud cutting observation.</p>	
					75		
	DM				85	<p>FINE TO COARSE SAND, little gravel. (DM means drilling mud sample)</p>	
	DM				95	<p>SAME AS ABOVE</p>	
					100		



LOG OF TEST BORING

PROJECT NAME L. E. Carpenter
LOCATION Warton, NJ
CONTRACTOR Aquifer Testing & Drilling
DRILLING METHOD Air Rotary Hammer

BORING NO. MW-11DR
SHEET NO. 4 OF 5
PROJECT NO. 3868.03
INSTALLATION 2/20/98
SURFACE ELEV. ---
BOREHOLE DIA. 10 IN/6 IN.

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS	WELL CONSTR
INTERVAL		RECOVERY		PID	DEPTH		
NO.	TYPE	N	IN	ppm			
	DM				105	SAME AS ABOVE	
					110		
	DM				115	SAME AS ABOVE	
					120		
	DM				125	SAME AS ABOVE	
					130		
	DM				135	SAME AS ABOVE	

N31BW 38683 4-10-98



LOG OF TEST BORING

BORING NO. MW-11DR
SHEET NO. 5 OF 5
PROJECT NO. 3868.03
INSTALLATION 2/20/98
SURFACE ELEV. ---
BOREHOLE DIA. 10 IN/6 IN.

PROJECT NAME L. E. Carpenter
LOCATION Warton, NJ
CONTRACTOR Aquifer Testing & Drilling
DRILLING METHOD Air Rotary Hammer

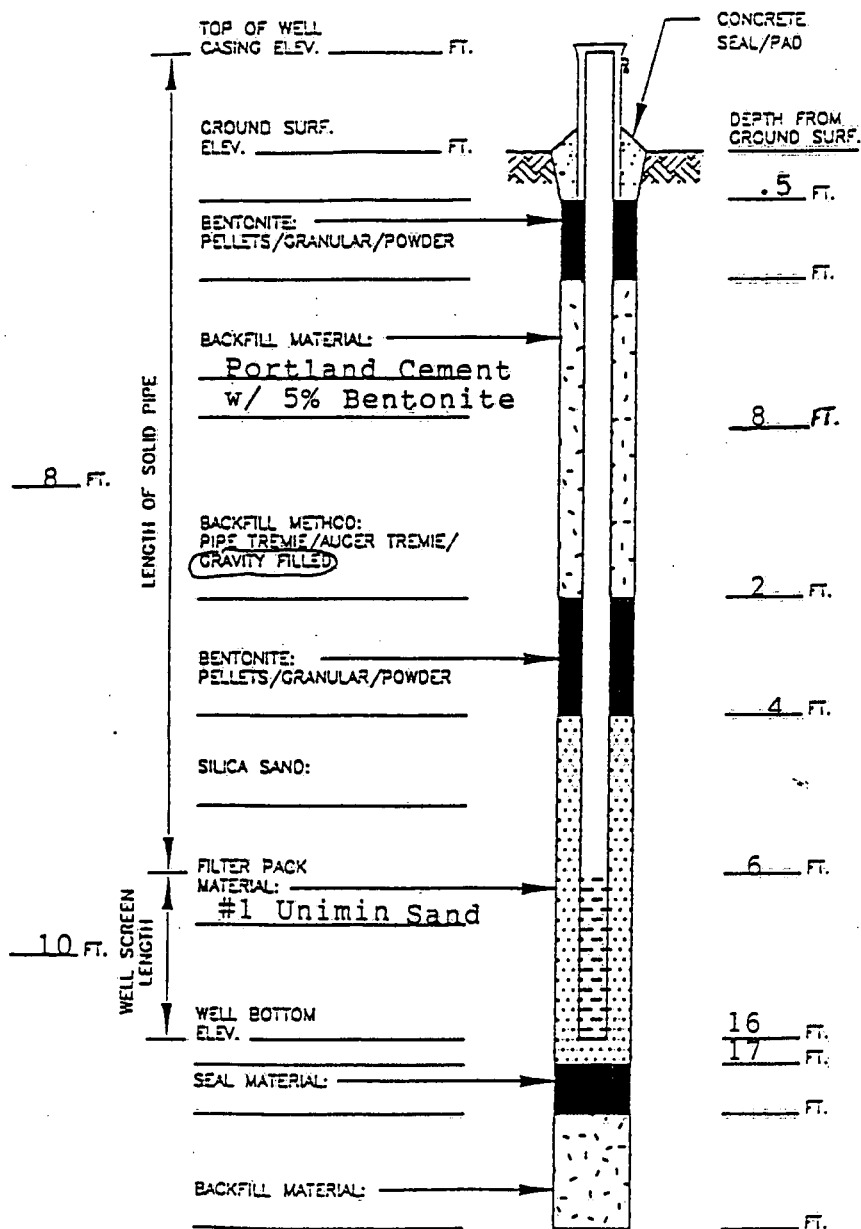
SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS	WELL CONSTR
INTERVAL		RECOVERY		PID	DEPTH		
NO.	TYPE	N	IN	ppm			
					140		
					145		
	DM					SAME AS ABOVE	
					150		
					155		
	DM						
						Granite bedrock at 156 feet. Drilled to 165 feet.	
					160		
					165	END OF BORING AT 165 FEET	
						Well MW-11DR set to a depth of 157 feet. Well MW-11DI set to a depth of 52 feet in a separate boring.	
					170		



Well Diagram
F-17 (9-94)

PROJECT NAME : L. E. Carpenter
PROJECT NO. : 3868.03
LOCATION: Wharton, NJ
DATE INSTALLED : 2/17/98
WELL NO. MW19-1
PREPARED BY: Eric VanHyde

MONITORING WELL CONSTRUCTION



1) CASING DETAILS

- A) TYPE OF PIPE:
PVC / STAINLESS / TEFLON / OTHER _____
PIPE SCHEDULE _____
PIPE DIAMETER I.D. 4 IN., O.D. _____ IN.
- B) TYPE OF PIPE JOINTS:
SLIP / THREADED (W/CAPE ?) / OTHER _____
SOLVENT CEMENT: YES OR NO
- C) TYPE OF WELL SCREEN:
PVC / STAINLESS / TEFLON / OTHER _____
SLOT SIZE: _____ IN.
SCREEN DIA.: I.D. IN. _____ O.D. IN. _____
- D) INSTALLED PROTECTOR PIPE W/LOCK ? YES OR NO
PROTECTOR PIPE DIA. _____ IN. LOCK NO. _____

2) WELL DEVELOPMENT

- A) METHOD
BAILING/PUMPING/SURGING/COMPRESSED AIR/OTHER _____
- B) TIME SPENT FOR DEVELOPMENT _____
- C) APPROXIMATE WATER VOLUME: REMOVED _____
ADDED _____
- D) WATER CLARITY:
BEFORE DEVELOPMENT -
CLEAR / TURBID / OPAQUE
AFTER DEVELOPMENT -
CLEAR / SLIGHTLY TURBID / TURBID / OPAQUE
- E) ODOR ? YES OR NO

3) WATER LEVEL SUMMARY

- A) DEPTH FROM TOP OF CASING AFTER DEVELOPMENT ?
_____ FT. OR DRY
- B) OTHER MEASUREMENTS (T.O.C.):
DATE / TIME _____ DEPTH _____
DATE / TIME _____ DEPTH _____
DATE / TIME _____ DEPTH _____

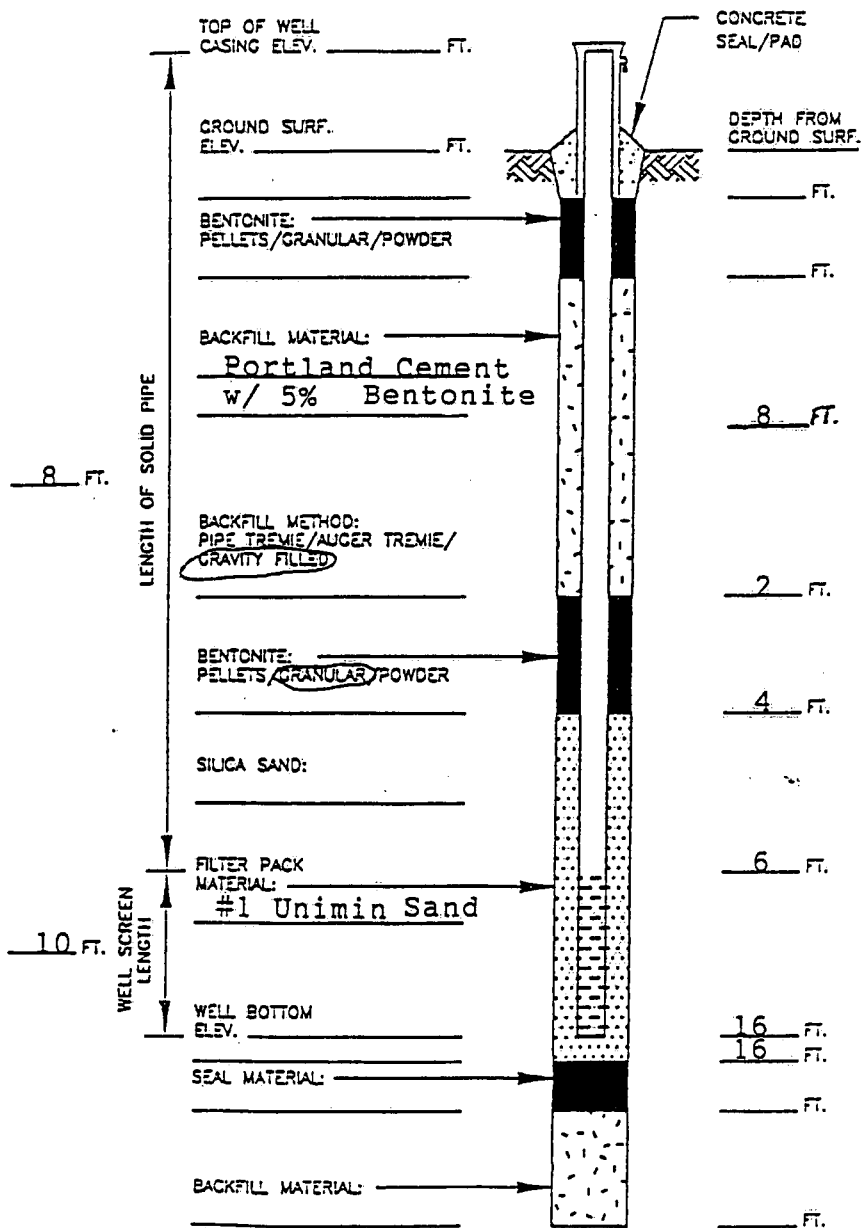
ADDITIONAL COMMENTS: Six-inch sump in well bottom. Therefore
actual screen @ 6-15.5 ft. BGL



Well Diagram
F-17 (9-94)

PROJECT NAME : L. E. Carpenter
PROJECT NO. : 3868.03
LOCATION: Wharton, NJ
DATE INSTALLED : 2/17/98
WELL NO. MW-19-2
PREPARED BY: Eric VanHyde

MONITORING WELL CONSTRUCTION



1) CASING DETAILS

A) TYPE OF PIPE:

PVC / STAINLESS / TEFLON / OTHER _____

PIPE SCHEDULE _____

PIPE DIAMETER I.D. 4 IN. O.D. _____ IN.

B) TYPE OF PIPE JOINTS:

SLIP / THREADED (W/ TAPE ?) / OTHER _____

SOLVENT CEMENT: YES OR NO

C) TYPE OF WELL SCREEN:

PVC / STAINLESS / TEFLON / OTHER _____

SLOT SIZE: 0.01 IN.

SCREEN DIA: I.D. IN. _____ O.D. IN. _____

D) INSTALLED PROTECTOR PIPE W/ LOCK ? YES OR NO

PROTECTOR PIPE DIA. 6 IN. LOCK NO. _____

2) WELL DEVELOPMENT

A) METHOD

BAILING/PUMPING/SURGING/COMPRESSED AIR/OTHER _____

B) TIME SPENT FOR DEVELOPMENT _____

C) APPROXIMATE WATER VOLUME: REMOVED _____

ADDED _____

D) WATER CLARITY:

BEFORE DEVELOPMENT -

CLEAR / TURBID / OPAQUE

AFTER DEVELOPMENT -

CLEAR / SLIGHTLY TURBID / TURBID / OPAQUE

E) ODOR ? YES OR NO

3) WATER LEVEL SUMMARY

A) DEPTH FROM TOP OF CASING AFTER DEVELOPMENT ?

_____ FT. OR DRY

B) OTHER MEASUREMENTS (T.O.C.):

DATE / TIME _____ DEPTH _____

DATE / TIME _____ DEPTH _____

DATE / TIME _____ DEPTH _____

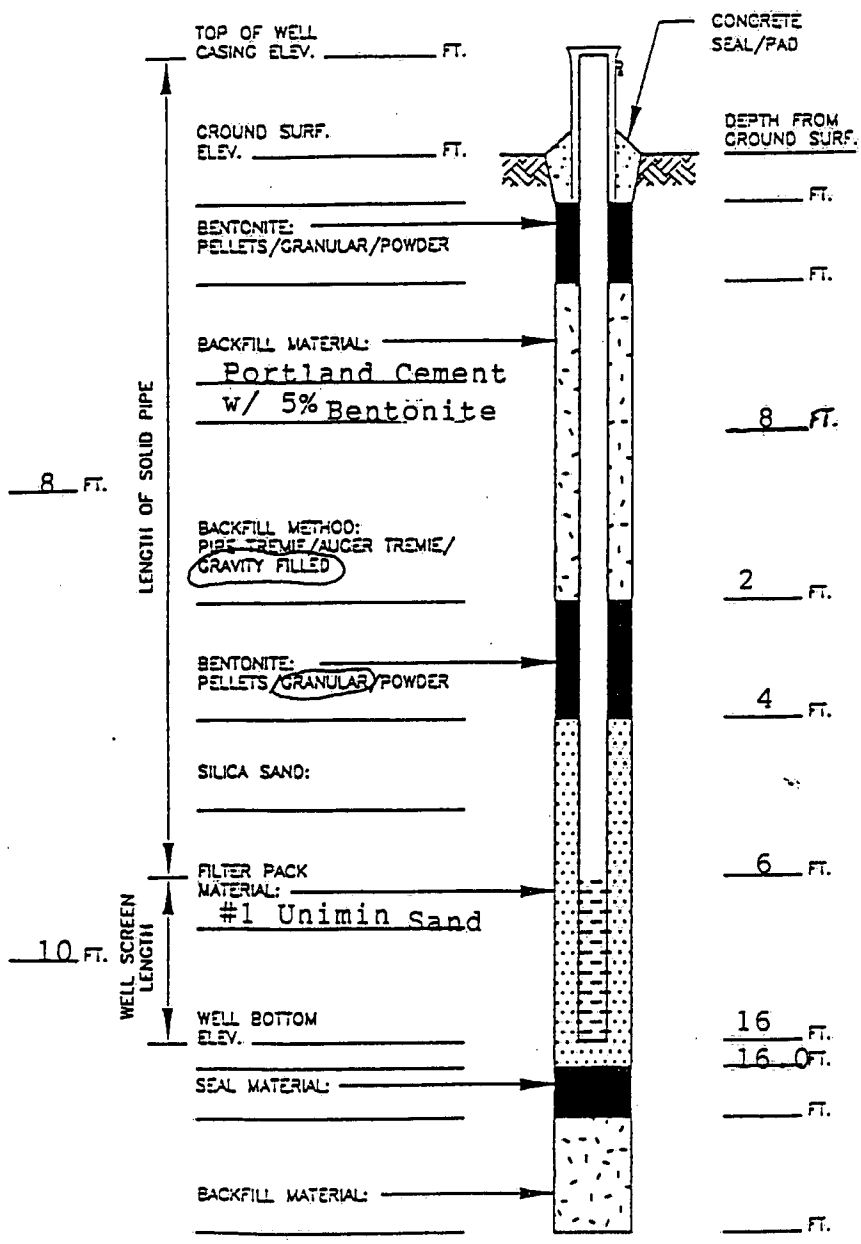
ADDITIONAL COMMENTS: No sump



Well Diagram
F-17 (9-94)

PROJECT NAME : L. E. Carpenter
PROJECT NO. : 3868.03
LOCATION: Wharton, NJ
DATE INSTALLED : 2/18/98
WELL NO. MW-19-3
PREPARED BY: Eric VanHyde

MONITORING WELL CONSTRUCTION



- 1) CASING DETAILS
 - A) TYPE OF PIPE: PVC / STAINLESS / TEFLON / OTHER
PIPE SCHEDULE _____
PIPE DIAMETER I.D. 4 IN. O.D. _____ IN.
 - B) TYPE OF PIPE JOINTS: SLIP / THREADED (W/CAPE ?) / OTHER _____
SOLVENT CEMENT: YES OR NO
 - C) TYPE OF WELL SCREEN: PVC / STAINLESS / TEFLON / OTHER _____
SLOT SIZE 0.01 IN.
SCREEN DIA: I.D. IN. _____ O.D. IN. _____
 - D) INSTALLED PROTECTOR PIPE W/LOCK ? YES OR NO
PROTECTOR PIPE DIA 6 IN. LOCK NO. _____
- 2) WELL DEVELOPMENT
 - A) METHOD
BAULING/PUMPING/SURGING/COMPRESSED AIR/OTHER _____
 - B) TIME SPENT FOR DEVELOPMENT _____
 - C) APPROXIMATE WATER VOLUME: REMOVED _____
ADDED _____
 - D) WATER CLARITY:
BEFORE DEVELOPMENT -
CLEAR / TURBID / OPAQUE
AFTER DEVELOPMENT -
CLEAR / SLIGHTLY TURBID / TURBID / OPAQUE
 - E) ODOR ? YES OR NO
- 3) WATER LEVEL SUMMARY
 - A) DEPTH FROM TOP OF CASING AFTER DEVELOPMENT ?
_____ FT. OR DRY
 - B) OTHER MEASUREMENTS (T.O.C.):
DATE / TIME _____ DEPTH _____ F
DATE / TIME _____ DEPTH _____ F
DATE / TIME _____ DEPTH _____ F

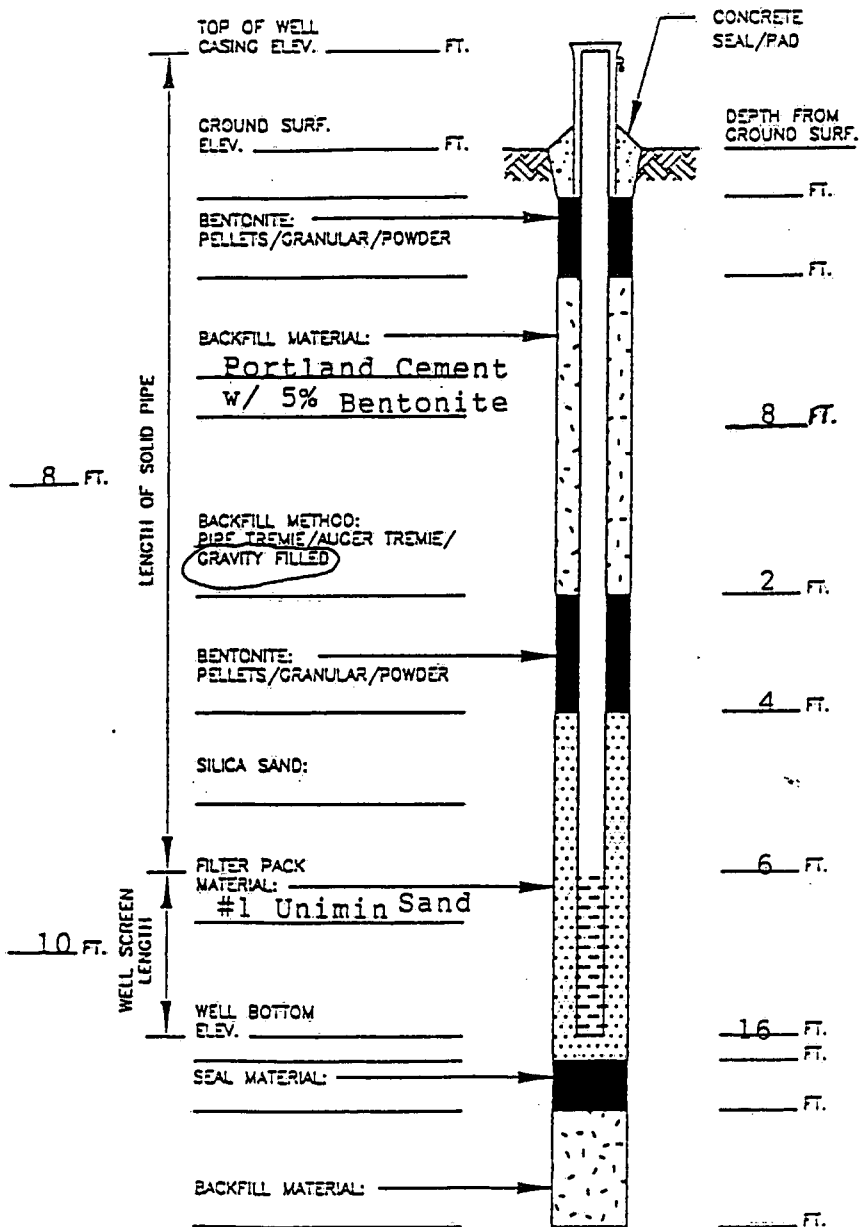
ADDITIONAL COMMENTS: 6" Sump in well bottom. Therefore actual screen @ 6-15.5 ft. BGL



Well Diagram
F-17 (9-94)

PROJECT NAME : L. E. Carpenter
PROJECT NO. : 3868.03
LOCATION: Wharton, NJ
DATE INSTALLED : 2/18/98
WELL NO. MW-19-4
PREPARED BY: Eric VanHyde

MONITORING WELL CONSTRUCTION



1) CASING DETAILS

A) TYPE OF PIPE:

PVC / STAINLESS / TEFLON / OTHER _____

PIPE SCHEDULE _____

PIPE DIAMETER I.D. 4 IN. O.D. _____ IN.

B) TYPE OF PIPE JOINTS:

SLIP / THREADED (W/ TAPE ?) / OTHER _____

SOLVENT CEMENT: YES OR NO

C) TYPE OF WELL SCREEN:

PVC / STAINLESS / TEFLON / OTHER _____

SLOT SIZE 0.01 IN.

SCREEN DIA: I.D. IN. _____ O.D. IN. _____

D) INSTALLED PROTECTOR PIPE W/ LOCK ? YES OR NO

PROTECTOR PIPE DIA 6 IN. LOCK NO. _____

2) WELL DEVELOPMENT

A) METHOD

BAILING/PUMPING/SURGING/COMPRESSED AIR/OTHER _____

B) TIME SPENT FOR DEVELOPMENT _____

C) APPROXIMATE WATER VOLUME: REMOVED _____

ADDED _____

D) WATER CLARITY:

BEFORE DEVELOPMENT -

CLEAR / TURBID / OPAQUE

AFTER DEVELOPMENT -

CLEAR / SLIGHTLY TURBID / TURBID / OPAQUE

E) ODOR ? YES OR NO

3) WATER LEVEL SUMMARY

A) DEPTH FROM TOP OF CASING AFTER DEVELOPMENT ?

_____ FT. OR DRY

B) OTHER MEASUREMENTS (T.O.C.):

DATE / TIME _____ DEPTH _____ F

DATE / TIME _____ DEPTH _____ F

DATE / TIME _____ DEPTH _____ F

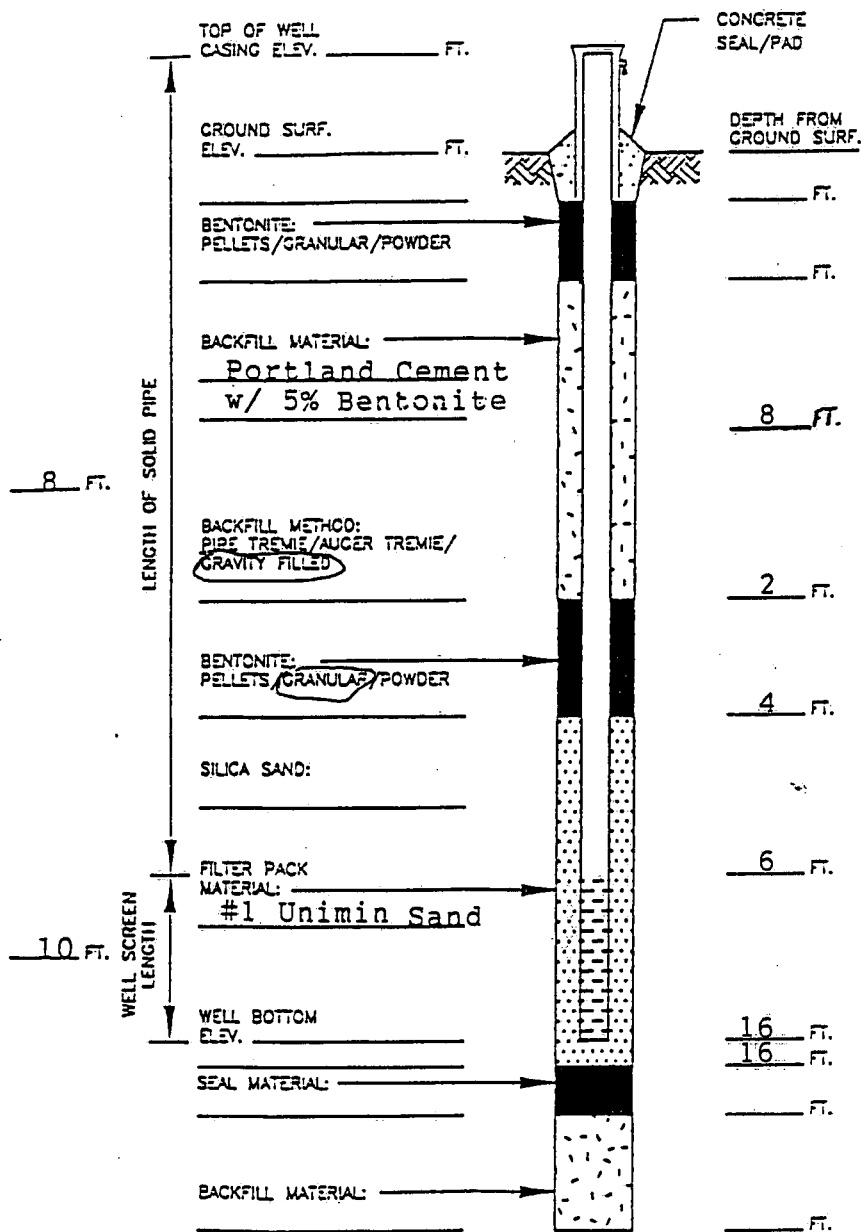
ADDITIONAL COMMENTS: 6" Sump @ well bottom. Therefore actual screen is @ 6-15.5 ft. BGL



Well Diagram
F-17 (9-94)

PROJECT NAME : L. E. Carpenter
PROJECT NO. : 3868.03
LOCATION: Wharton, NJ
DATE INSTALLED : 2/18/98
WELL NO. MW-19-5
PREPARED BY: Eric VanHyde

MONITORING WELL CONSTRUCTION



1) CASING DETAILS

A) TYPE OF PIPE:

PVC / STAINLESS / TEFLON / OTHER _____

PIPE SCHEDULE _____

PIPE DIAMETER I.D. 2 IN. O.D. _____ IN.

B) TYPE OF PIPE JOINTS:

SLIP / THREADED (W/TAPE ?) / OTHER _____

SOLVENT CEMENT: YES OR NO

C) TYPE OF WELL SCREEN:

PVC / STAINLESS / TEFLON / OTHER _____

SLOT SIZE 0.1 IN.

SCREEN DIA: I.D. IN. _____ O.D. IN. _____

D) INSTALLED PROTECTOR PIPE W/LOCK ? YES OR NO

PROTECTOR PIPE DIA 6 IN. LOCK NO. _____

2) WELL DEVELOPMENT

A) METHOD

BAILING/PUMPING/SURGING/COMPRESSED AIR/OTHER

B) TIME SPENT FOR DEVELOPMENT _____

C) APPROXIMATE WATER VOLUME: REMOVED _____

ADDED _____

D) WATER CLARITY:

BEFORE DEVELOPMENT -

CLEAR / TURBID / OPAQUE

AFTER DEVELOPMENT -

CLEAR / SLIGHTLY TURBID / TURBID / OPAQUE

E) ODOR ? YES OR NO

3) WATER LEVEL SUMMARY

A) DEPTH FROM TOP OF CASING AFTER DEVELOPMENT ?

_____ FT. OR DRY

B) OTHER MEASUREMENTS (T.O.C.):

DATE / TIME _____ DEPTH _____

DATE / TIME _____ DEPTH _____

DATE / TIME _____ DEPTH _____

ADDITIONAL COMMENTS: 6" Sump in well bottm, therefore actual screen @ 6-15.5 ft. BGL



WELL DEVELOPMENT RECORD

PROJECT NAME: L.E. CarpenterWELL NUMBER: MW-19-1PROJECT NUMBER: 3868.03WELL DIAMETER: 4 "DATE: 2/27/98SAMPLER: ENVIROTECHType Of Pump Used: Whaler PumpPumping Rate (gallon/minute): 2 gpmWater level before purging (nearest 0.01 ft. below reference point) 10.44 feetDepth to bottom of well (obtained from well logs) 17.98 feetCalculated volume of water in casing 5 Gallons (1 Volume)Weather conditions N/A

Date	Well Volume (gal)	pH (Units)	Turbidity (NTU)	Conductivity Units: uS/cm		Temperature (°C)	Pump Depth (0.01 ft.)	Cumulative Purge Volume: (gal)
				Uncorrected	Corrected			
2/27/98	1	8.92	Moderate	584	381	53.0	11	5
2/27/98	3	8.92	Moderate	579	377	53.0	14	15
2/27/98	5	8.92	Moderate	576	377	52.6	15	25
2/27/98	7	8.91	High	536	352	52.4	16	35
2/27/98	9	8.91	High	527	346	52.4	17	45

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS: pH - ± 0.1 pH; COND. - $\pm 5\%$; TEMP (CORRECTED); TEMP. - $\pm 0.5^\circ\text{C}$; TURBIDITY $\pm 10\%$

Signed _____

Date _____

QC'd By _____

Date _____



WELL DEVELOPMENT RECORD

PROJECT NAME: L.E. Carpenter WELL NUMBER: MW-19-2PROJECT NUMBER: 3868.03 WELL DIAMETER: 4"DATE: 2/27/98 SAMPLER: ENVIROTECHType Of Pump Used: Whaler PumpPumping Rate (gallon/minute): 2 gpmWater level before purging (nearest 0.01 ft. below reference point) 10.56 feetDepth to bottom of well (obtained from well logs) 18.03 feetCalculated volume of water in casing 5 Gallons (1 Volume)Weather conditions N/A

Date	Well Volume (gal)	pH (Units)	Turbidity (NTU)	Conductivity Units: uS/cm		Temperature (°C)	Pump Depth (0.01 ft.)	Cumulative Purge Volume; (gal)
				Uncorrected	Corrected			
2/27/98	1	9.36	Moderate	637	403	55.5	12	5
2/27/98	3	8.36	Moderate	666	421	55.5	13	15
2/27/98	5	8.31	High	732	463	55.5	14	25
2/27/98	7	8.37	High	742	471	55.1	15	35
2/27/98	9	8.39	High	743	473	54.9	18	45

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS: pH - ± 0.1 pH; COND. - $\pm 5\%$; TEMP (CORRECTED); TEMP. - $\pm 0.5^\circ\text{C}$; TURBIDITY $\pm 10\%$

Signed _____

Date _____

QC'd By _____

Date _____



WELL DEVELOPMENT RECORD

PROJECT NAME: L.E. CarpenterWELL NUMBER: MW-19-3PROJECT NUMBER: 3868.03WELL DIAMETER: 4 "DATE: 2/27/98SAMPLER: ENVIROTECHType Of Pump Used: Whaler PumpPumping Rate (gallon/minute): 2 gpmWater level before purging (nearest 0.01 ft. below reference point) 11.26 feetDepth to bottom of well (obtained from well logs) 17.95 feetCalculated volume of water in casing 5 Gallons (1 Volume)Weather conditions N/A

Date	Well Volume (gal)	pH (Units)	Turbidity (NTU)	Conductivity Units: uS/cm		Temperature (°C)	Pump Depth (0.01 ft.)	Cumulative Purge Volume (gal)
				Uncorrected	Corrected			
2/27/98	1	9.48	Moderate	755	464	57.9	12	5
2/27/98	3	9.48	High	751	461	57.9	13	15
2/27/98	5	9.36	High	749	462	57.6	14	25
2/27/98	7	9.18	High	721	454	55.8	16	35
2/27/98	9	9.15	High	715	451	55.6	17	45

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS: pH - ± 0.1 pH; COND. - $\pm 5\%$; TEMP (CORRECTED); TEMP. - $\pm 0.5^\circ\text{C}$; TURBIDITY $\pm 10\%$

Signed _____

Date _____

QC'd By _____

Date _____

PROJECT NAME: L.E. Carpenter WELL NUMBER: MW-19-4
PROJECT NUMBER: 3868.03 WELL DIAMETER: 4"
DATE: 2/27/98 SAMPLER: ENVIROTECH
Type Of Pump Used: Whaler Pump
Pumping Rate (gallon/minute): 2 gpm
Water level before purging (nearest 0.01 ft. below reference point) 9.03 feet
Depth to bottom of well (obtained from well logs) 17.76 feet
Calculated volume of water in casing 5 Gallons (1 Volume)
Weather conditions N/A

[illegible]

Signed _____ Date _____ QC'd By _____ Date _____



WELL DEVELOPMENT RECORD

PROJECT NAME: L.E. Carpenter WELL NUMBER: MW-19-5
 PROJECT NUMBER: 3868.03 WELL DIAMETER: 2"
 DATE: 2/27/98 SAMPLER: ENVIROTECH
 Type Of Pump Used: Whaler Pump
 Pumping Rate (gallon/minute): 2 gpm
 Water level before purging (nearest 0.01 ft. below reference point) 10.74 feet
 Depth to bottom of well (obtained from well logs) 18.23 feet
 Calculated volume of water in casing 1.3 Gallons (1 Volume)
 Weather conditions N/A

Date	Well Volume (gal)	pH (Units)	Turbidity (NTU)	Conductivity Units: $\mu\text{S}/\text{cm}$		Temperature (°C)	Pump Depth (0.01 ft.)	Cumulative Purge Volume (gal)
				Uncorrected	Corrected			
2/27/98	1	8.99	Moderate	942	581	57.6	12	1.5
2/27/98	3	8.91	High	877	552	55.8	14	4.5
2/27/98	5	8.84	High	823	518	55.8	15	9.5
2/27/98	7	8.78	High	764	485	55.1	16	14.5
2/27/98	9	8.76	High	756	482	54.7	18	18

NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS: pH - ± 0.1 pH; COND. - $\pm 5\%$; TEMP (CORRECTED); TEMP. - $\pm 0.5^\circ\text{C}$; TURBIDITY $\pm 10\%$

Signed

Date

QC'd By

Date

THIS FORM MUST BE COMPLETED BY THE PERMITTEE OR/HIS AGENT

GROUND WATER MONITORING WELL CERTIFICATION - FORM B - LOCATION CERTIFICATION

Name of Permittee:

Name of Facility:

Location:

NJPDES Number:

LAND SURVEYOR'S CERTIFICATION

Well Permit Number (As assigned by NJDEP's
Bureau of Water Allocation:

This number must be permanently affixed to
the well casing.

2 5 - 5 1 9 5 3

Longitude (one-tenth of a second) :

West 74° 34' 44.0"

Latitude (one-tenth of a second) :

North 40° 54' 17.0"

Elevation of Top of Casing (cap off)

(One-hundredth of a foot): inner well

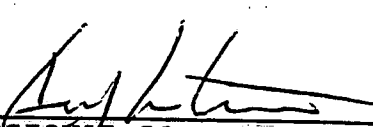
638.86

Owners Well Number (As shown on application
or plans) :

M.W. - 19-1

AUTHENTICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.


PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Keith W. Condit

SEAL

PROFESSIONAL LAND SURVEYOR'S NAME
(Please print or type)

L.S. No. 12808

PROFESSIONAL LAND SURVEYOR'S LICENSE #

The Department reserves the right in cases of violation of permit specified ground water limits of Ground Water Quality Standards (N.J.A.C. 7:9-6.1 et seq.) to require that wells be resurveyed to an accuracy of one-hundredth of a second latitude and longitude. This shall not be considered to be a major modification of the NJPDES permit.

THIS FORM MUST BE COMPLETED BY THE PERMITTEE OR/HIS AGENT

GROUND WATER MONITORING WELL CERTIFICATION - FORM B - LOCATION CERTIFICATION

Name of Permittee:

Name of Facility:

Location:

NJPDES Number:

LAND SURVEYOR'S CERTIFICATION

Well Permit Number (As assigned by NJDEP's
Bureau of Water Allocation:

This number must be permanently affixed to
the well casing.

2 5 - 5 1 9 5 4

Longitude (one-tenth of a second) :

West 74° 34' 44.0"

Latitude (one-tenth of a second) :

North 40° 54' 17.2"

Elevation of Top of Casing (cap off)

(One-hundredth of a foot): inner well

Owners Well Number (As shown on application
or plans) :

638.76

M.W. - 19-2

AUTHENTICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.


PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Keith W. Condit

SEAL

PROFESSIONAL LAND SURVEYOR'S NAME
(Please print or type)

L.S. No. 12808

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THIS FORM MUST BE COMPLETED BY THE PERMITTEE OR/HIS AGENT

GROUND WATER MONITORING WELL CERTIFICATION - FORM B - LOCATION CERTIFICATION

Name of Permittee:

Name of Facility:

Location:

NJPDES Number:

LAND SURVEYOR'S CERTIFICATION

Well Permit Number (As assigned by NJDEP's
Bureau of Water Allocation:

This number must be permanently affixed to
the well casing.

2 5 - 5 1 9 5 5

Longitude (one-tenth of a second) :

West 74° 34' 44.5"

Latitude (one-tenth of a second) :

North 40° 54' 17.1"

Elevation of Top of Casing (cap off)

(One-hundredth of a foot): inner well


639.65

Owners Well Number (As shown on application
or plans) :

M.W. - 19-3

AUTHENTICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.



PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Keith W. Condit

PROFESSIONAL LAND SURVEYOR'S NAME

(Please print or type)

L.S. No. 12808

PROFESSIONAL LAND SURVEYOR'S LICENSE #

SEAL

The Department reserves the right in cases of violation of permit specified ground water limits of Ground Water Quality Standards (N.J.A.C. 7:9-6.1 et seq.) to require that wells be resurveyed to an accuracy of one-hundredth of a second latitude and longitude. This shall not be considered to be a major modification of the NJPDES permit.

THIS FORM MUST BE COMPLETED BY THE PERMITTEE OR/HIS AGENT

GROUND WATER MONITORING WELL CERTIFICATION - FORM B - LOCATION CERTIFICATION

Name of Permittee:

Name of Facility:

Location:

NJPDES Number:

LAND SURVEYOR'S CERTIFICATION

Well Permit Number (As assigned by NJDEP's
Bureau of Water Allocation:

This number must be permanently affixed to
the well casing.

2 5 - 5 1 9 5 6

Longitude (one-tenth of a second) :

West 74° 34' 44.0"

Latitude (one-tenth of a second) :

North 40° 54' 16.7"

Elevation of Top of Casing (cap off)

(One-hundredth of a foot): inner well

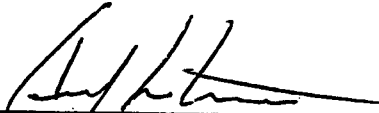
Owners Well Number (As shown on application
or plans) :

637.74

M.W. - 19 - 4

AUTHENTICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.



PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Keith W. Condit

SEAL

PROFESSIONAL LAND SURVEYOR'S NAME

(Please print or type)

L.S. No. 12808

PROFESSIONAL LAND SURVEYOR'S LICENSE #

The Department reserves the right in cases of violation of permit specified ground water limits of Ground Water Quality Standards (N.J.A.C. 7:9-6.1 et seq.) to require that wells be resurveyed to an accuracy of one-hundredth of a second latitude and longitude. This shall not be considered to be a major modification of the NJPDES permit.

THIS FORM MUST BE COMPLETED BY THE PERMITTEE OR/HIS AGENT

GROUND WATER MONITORING WELL CERTIFICATION - FORM B - LOCATION CERTIFICATION

Name of Permittee:

Name of Facility:

Location:

NJPDES Number:

LAND SURVEYOR'S CERTIFICATION

Well Permit Number (As assigned by NJDEP's
Bureau of Water Allocation:

This number must be permanently affixed to
the well casing.

2 5 - 5 2 0 1 7

Longitude (one-tenth of a second) :

West 74° 34' 43.5"

Latitude (one-tenth of a second) :

North 40° 54' 17.3"

Elevation of Top of Casing (cap off)

(One-hundredth of a foot): inner well

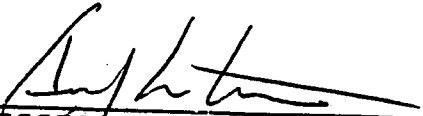
Owners Well Number (As shown on application
or plans) :

638.74

M.W. - 19-5

AUTHENTICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.


PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Keith W. Condit

PROFESSIONAL LAND SURVEYOR'S NAME
(Please print or type)

SEAL

L.S. No. 12808

PROFESSIONAL LAND SURVEYOR'S LICENSE #

The Department reserves the right in cases of violation of permit specified ground water limits of Ground Water Quality Standards (N.J.A.C. 7:9-6.1 et seq.) to require that wells be resurveyed to an accuracy of one-hundredth of a second latitude and longitude. This shall not be considered to be a major modification of the NJPDES permit.

Bureau of Water Allocation
MONITORING WELL RECORD

Well Permit No. 20 31753

Atlas Sheet Coordinates 14N 12E 344

OWNER IDENTIFICATION - Owner L. J. CAPPELLO
Address 1001 E. 10TH ST. INDIANAPOLIS
City INDIANAPOLIS State IN Zip Code 46204

WELL LOCATION - If not the same as owner please give address. Owner's Well No. _____
County _____ Municipality _____ Lot No. _____ Block No. _____
Address _____

Address _____ DATE WELL STARTED ____/____/____
 TYPE OF WELL (as per Well Permit Categories) _____ DATE WELL COMPLETED ____/____/____
 Regulatory Program Requiring Well _____ Case I.D.# _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) _____ Tele. # 47-10240

WELL CONSTRUCTION

Total depth drilled 46 ft.
Well finished to 46 ft.

Borehole diameter:

Top _____ in.
Bottom _____ in.

Well was finished: ☐ above grade
☐ flush mounted

If finished above grade, casing height (stick up) above land surface _____ ft.

Was steel protective casing installed?
☐ Yes ☐ No

Static water level after drilling _____ ft.

Water level was measured using 10 .

Well was developed for 1200 hours
at 1000 gpm

Method of development 65

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity _____ gpm

Pump type: _____

Drilling Fluid _____ Type of Rig _____

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None D C B A

I certify that I have constructed the above referenced well in accordance with all well permit requirements and applicable State rules and regulations.

Drilling Company _____

Well Driller (Print)

Driller's Signature _____

Registration No. _____ Date ____/____/____

Note: Measure all depths from land surface	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt./Rating (lbs/sch no.)
Single/Inner Casing	—	—	—	—	—
Middle Casing (for triple cased wells only)	—	—	—	—	—
Outer Casing (largest diameter)	—	—	—	—	—
Open Hole or Screen (No. Used)	—	—	—	—	—
Blank Casings (No. Used)	—	—	—	—	—
Tail Piece	—	—	—	—	—
Gravel Pack	—	—	—	—	—
Grout	—	—	—	Neat Cement Bentonite	— lbs. — lbs.

Grouting Method _____
Drilling Method _____

GEOLOGIC LOG

Note each depth where water was encountered in consolidated formations.

[illegible]

MONITORING WELL RECORD

Well Permit No. 25 5-917

Atlas Sheet Coordinates 15 32 304

OWNER IDENTIFICATION - Owner L. J. CARPENTER

Address _____

City San Francisco State CA Zip Code 94117

WELL LOCATION - If not the same as owner please give address. Owner's Well No. 7000-1

County Winnipeg Municipality East St. Paul Lot No. 10 Block No. 101

Address 1000 14th St. N.W.

DATE WELL STARTED 2/1/78

DATE WELL COMPETED 7/10/77

TYPE OF WELL (as per Well Permit Categories) _____

Regulatory Program Requiring Well 5001 Case I.D.# 81201100-00

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) ASPT, INC. Tele. # 977-1000

WELL CONSTRUCTION

Total depth drilled 100 ft.

Well finished to _____ ft.

Borehole diameter:

Top _____ in.

Bottom _____ in.

Well was finished: ☒ above grade
☐ flush mounted

If finished above grade, casing height (stick up) above land surface _____ ft.

Was steel protective casing installed?

☐ Yes ☐ No

Static water level after drilling _____ ft.

Water level was measured using _____.

Well was developed for 45 hours
at 100 gpm

Method of development _____

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity _____ gpm

Pump type: _____

Drilling Fluid _____ Type of Rig _____

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None D C B A

I certify that I have constructed the above referenced well in accordance with all well permit requirements and applicable State rules and regulations.

Drilling Company _____

Well Driller (Print) _____

Driller's Signature _____

Registration No. _____ Date ____/____/____

Note: Measure all depths from land surface	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt./Rating (lbs/sch no.)
Single/Inner Casing	1	2	1	1	1
Middle Casing (for triple cased wells only)	1	1	1	1	1
Outer Casing (largest diameter)	1	1	1	1	1
Open Hole or Screen (No. Used)	1	1	1	1	1
Blank Casings (No. Used)	1	1	1	1	1
Tail Piece	1	1	1	1	1
Gravel Pack	1	1	1	1	1
Grout	1	1	1	Neat Cement Bentonite	____ lbs. ____ lbs.

Grouting Method _____
Drilling Method _____

GEOLOGIC LOG

Note each depth where water was encountered in consolidated formations.

[illegible]

Well Permit No. 100 - 51801Atlas Sheet Coordinates : S.

OWNER IDENTIFICATION - Owner _____
Address _____
City _____ State _____ Zip Code _____

WELL LOCATION - If not the same as owner please give address. Owner's Well No. _____
County _____ Municipality _____ Lot No. _____ Block No. _____
Address _____

DATE WELL STARTED 12/15/2011
DATE WELL COMPLETED 12/15/2011
TYPE OF WELL (as per Well Permit Categories) WATER SUPPLY
Regulatory Program Requiring Well WATER SUPPLY Case I.D.# WATER SUPPLY

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) W. J. ... Tele. # 912 973 1500

Total depth drilled _____ ft.
Well finished to _____ ft.

Borehole diameter: _____ in.
Top _____ in.
Bottom _____ in.

Well was finished: ☐ above grade
☐ flush mounted

If finished above grade, casing height (stick up) above land surface _____ ft.

Was steel protective casing installed?
☐ Yes ☐ No

Static water level after drilling _____ ft.

Water level was measured using 7.25

Well was developed for 100 hours
at 100 gpm

Method of development _____

Was permanent pumping equipment installed? ☐ Yes ☐ No

Pump capacity _____ gpm

Pump type: _____

Drilling Fluid _____ Type of Rig _____

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None D C B A

I certify that I have constructed the above referenced well in accordance with all well permit requirements and applicable State rules and regulations.

Drilling Company _____

Well Driller (Print) _____

Driller's Signature _____

Registration No. _____ Date ____/____/____

Note: Measure all depths from land surface	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt./Rating (lbs/sch no.)
Single/Inner Casing	5	10	4	5" 1/2" J-55	20.0
Middle Casing (for triple cased wells only)	-	-	-	-	-
Outer Casing (largest diameter)	-	-	-	-	-
Open Hole or Screen (No. Used)	6	10	8	5" 1/2" J-55	20.0
Blank Casings (No. Used)	-	-	-	-	-
Tail Piece	-	-	-	-	-
Gravel Pack	7	10	8	5" 1/2" J-55	20.0
Grout	2	1	4	Neat Cement Bentonite	20 lbs. 20 lbs.

Grouting Method _____
Drilling Method _____

Note each depth where water was encountered in consolidated formations:

GEOLOGIC LOG

Note each depth where water was encountered in consolidated formations:

MONITORING WELL RECORD

Well Permit No. 30 - 51551

Atlas Sheet Coordinates 24 : 20 : 202

OWNER IDENTIFICATION - Owner J. R. CASPER/STINE

Address 100 W. 10TH ST. SUITE 200

City NEWARK State NJ Zip Code 07102

WELL LOCATION - If not the same as owner please give address. Owner's Well No. AW-12

County ESSEX Municipality NEWARK CITY Lot No. Block No. 2001

Address 1700 MAIN ST

DATE WELL STARTED 5/13/99

DATE WELL COMPLETED 5/13/99

TYPE OF WELL (as per Well Permit Categories) WATER WELL

Regulatory Program Requiring Well SDWA Case I.D.# NEWARK00113

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) JOHN J. CASPER/STINE Tele. # 973-200-1100

WELL CONSTRUCTION

Total depth drilled 40 ft.

Well finished to 40 ft.

Borehole diameter:

Top 4 in.

Bottom 4 in.

Well was finished: ☐ above grade
☐ flush mounted

If finished above grade, casing height (stick up) above land surface 0 ft.

Was steel protective casing installed?
☐ Yes ☐ No

Static water level after drilling 0 ft.

Water level was measured using 0

Well was developed for 0 hours
at 0 gpm

Method of development 0

Was permanent pumping equipment installed? ☐ Yes ☐ No

Pump capacity 0 gpm

Pump type: 0

Drilling Fluid 0 Type of Rig 0

Health and Safety Plan submitted? ☐ Yes ☐ No

Level of Protection used on site (circle one) None D C B A

I certify that I have constructed the above referenced well in accordance with all well permit requirements and applicable State rules and regulations.

Drilling Company 0

Well Driller (Print) 0

Driller's Signature 0

Registration No. 0 Date 5/13/99

Note: Measure all depths from land surface	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt./Rating (lbs/sch no.)
Single/Inner Casing	<u>0</u>	<u>0</u>	<u>4</u>	<u>4" SCH 40</u>	<u>0</u>
Middle Casing (for triple cased wells only)	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Outer Casing (largest diameter)	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Open Hole or Screen (No. Used)	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Blank Casings (No. Used)	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Tail Piece	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Gravel Pack	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Grout	<u>0</u>	<u>0</u>	<u>0</u>	<u>Neat Cement Bentonite</u>	<u>0</u> lbs. <u>0</u> lbs.

Grouting Method 0

Drilling Method 0

GEOLOGIC LOG

Note each depth where water was encountered in consolidated formations.

Atlas Sheet Coordinates 14S 10E 15N

COPIES: White - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

SERIAL # 00130

DWR-133M (8/95)

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
TRENTON, NJ

Mail to

NJDEP
Bureau Water Allocation
CN 426
Trenton, NJ 08625-0426

MONITORING WELL PERMIT

VALID ONLY AFTER APPROVAL BY THE D.E.P.

Permit No.

COORD # 25 12.3 74

Owner L.E. CARPENTER
Address 1301 G. 7th St. Suite 3600
CLAMMERS, OH 44114
Name of Facility L.E. CARPENTER
Address 170 N. MAIN ST.
WARRINGTON, NJ

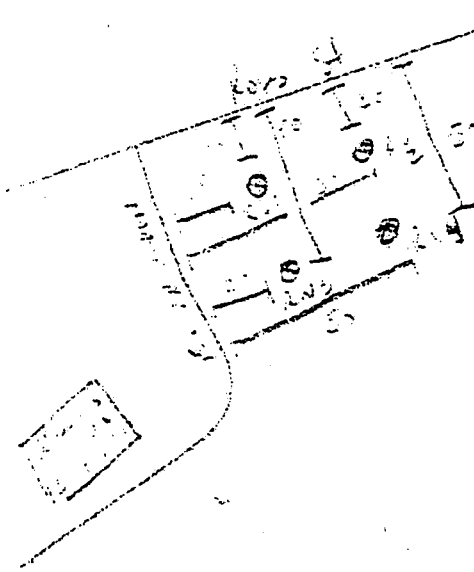
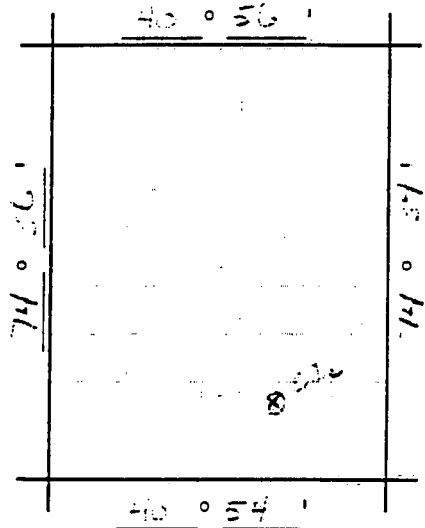
Driller ART - M. S. L. INC.
Address 100 WARRINGTON AVE
WARRINGTON, NJ 08613
Diameter of Well(s) 4 Inches
Proposed Depth of Well(s) 20 Feet
of Wells Applied for (max. 10) 4
Will pumping equipment be installed? YES ☐ NO ☐
Type of Well (see reverse) RECOVERY
If Yes, give pump capacity 100 cumulative GPM

LOCATION OF WELL(S)

Lot # 2 Block # 0801 Municipality WARRINGTON County MIDDLESEX

Draw sketch of well(s) nearest roads, buildings, etc. with marked distances in feet. Each well MUST be labeled with a name and/or number on the sketch.

State Atlas Map No. 25



FOR MONITORING WELLS, RECOVERY WELLS, OR PIEZOMETERS, THE FOLLOWING MUST BE COMPLETED BY THE APPLICANT. PLEASE INDICATE WHY THE WELLS ARE BEING INSTALLED:

- ☐ Spill Site
☐ ISRA Site
☒ CERCLA (Superfund) Site
☐ RCRA Site
☐ Underground Storage Tank Site
☐ Operational Ground Water Permit Site
☐ Pretreatment and Residuals Site
☐ Water and Hazardous Waste Enforcement Case
☐ Water Supply Aquifer Test Observation Well
☐ Other (explain) _____

CASE I.D. Number

NTD002168743

This Space for Approval Stamp

WELL PERMIT APPROVED
NJDEP

FEB 2 1999

BUREAU OF WATER ALLOCATION

FOR D.E.P. USE ☐ Issuance of this permit is subject to the conditions attached. (see next page)
☐ For monitoring purposes only
☐ The well(s) may not be completed with more than 25 feet of total screen or uncased borehole.

SEE REVERSE SIDE FOR IMPORTANT PROVISIONS AND REGULATIONS PERTAINING TO THIS PERMIT.

In compliance with N.J.S.A. 58:4A-14, application is made for a permit to drill a well as described above.

Date 12-3-98 Signature of Driller [Signature] Registration No. 71471

Signature of Owner [Signature]

COPIES:

Water Allocation — White

Health Dept. — Yellow

Owner — Blue

Driller — White

SERIAL # 00130

DWR-133M-(8/95)

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
TRENTON, NJ

Mail to

NJDEP
Bureau Water Allocation
CN 426
Trenton, NJ 08625-0426

MONITORING WELL PERMIT

VALID ONLY AFTER APPROVAL BY THE D.E.P.

Permit No. 35-20-11

COORD #: 35-20-294

Owner LEWIS & CLARK
Address 1127 P. 307
1127 P. 307
Name of Facility LEWIS & CLARK
Address 1127 P. 307

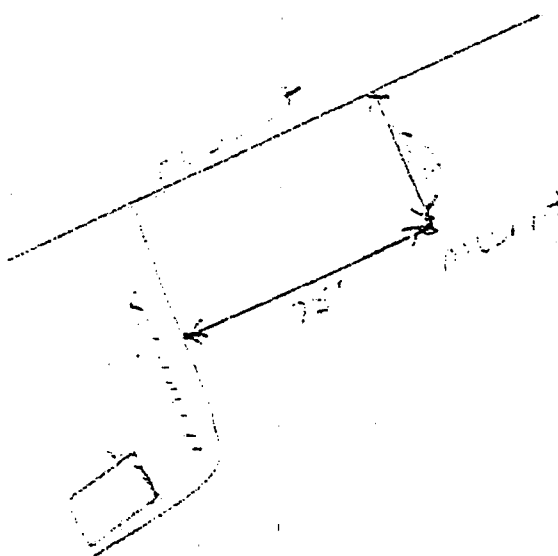
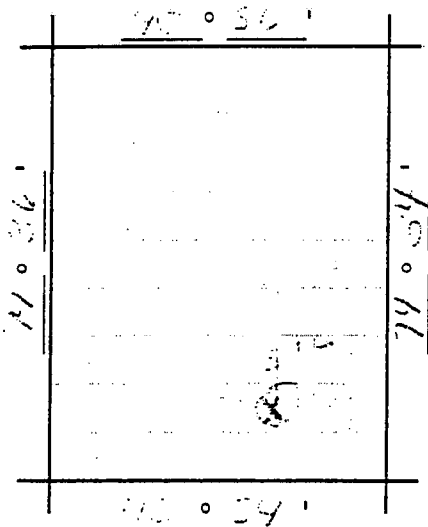
Driller ART. 1127 P. 307
Address 1127 P. 307
Diameter of Well(s) 4 Inches
Proposed Depth of Well(s) 37 Feet
of Wells Applied for (max. 10) 1
Will pumping equipment be installed? YES ☐ NO ☒
Type of Well (see reverse) ART. 1127 P. 307
If Yes, give pump capacity 1.57 cumulative GPM

LOCATION OF WELL(S)

Lot # <u>2</u>	Block # <u>201</u>	Municipality <u>1127 P. 307</u>	County <u>25</u>
----------------	--------------------	---------------------------------	------------------

Draw sketch of well(s) nearest roads, buildings, etc. with marked distances in feet. Each well MUST be labeled with a name and/or number on the sketch.

State Atlas Map No. 25



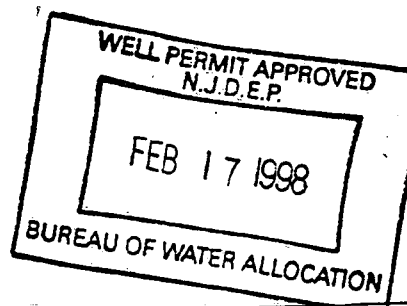
N↑

FOR MONITORING WELLS, RECOVERY WELLS, OR PIEZOMETERS, THE FOLLOWING MUST BE COMPLETED BY THE APPLICANT. PLEASE INDICATE WHY THE WELLS ARE BEING INSTALLED:

- ☐ Spill Site
- ☐ ISRA Site
- ☒ CERCLA (Superfund) Site
- ☐ RCRA Site
- ☐ Underground Storage Tank Site
- ☐ Operational Ground Water Permit Site
- ☐ Pretreatment and Residuals Site
- ☐ Water and Hazardous Waste Enforcement Case
- ☐ Water Supply Aquifer Test Observation Well
- ☐ Other (explain) _____

CASE I.D. Number

This Space for Approval Stamp



FOR D.E.P. USE

- ☐ Issuance of this permit is subject to the conditions attached. (see next page)
- ☐ For monitoring purposes only
- ☐ The well(s) may not be completed with more than 25 feet of total screen or uncased borehole.

SEE REVERSE SIDE FOR IMPORTANT PROVISIONS AND REGULATIONS PERTAINING TO THIS PERMIT.

In compliance with N.J.S.A. 58:4A-14, application is made for a permit to drill a well as described above.

Date 2/17/98 Signature of Driller ART. 1127 P. 307 Registration No. 1127 P. 307

Signature of Owner _____



Appendix D

Field Sampling Data

Monitoring Well Data

Client: RMTProject: LE CarpenterJob No: C 022Date Sampled: 3/12/98Analyst: R. Toogood

Well ID	MW-19-1	MW-19-2	MW 19-3	MW-19-4	MW-19-5	MW-15S	MW-15I	MW-14I	MW-22
Depth to Water From TOC feet (before purging)	10.91	10.94	11.64	9.60	11.03	9.79	9.68	2.00	2.20
Depth to Water From TOC feet (after purging)	11.98	11.36	12.34	12.02	11.37	9.38	9.71	2.11	5.91
Depth to Water From TOC feet (before sampling)	10.08	11.00	11.81	10.05	11.11	9.81	9.68	2.00	2.21
Depth to Bottom From TOC feet	18.00	17.83	17.80	17.82	18.30	19.48	40.14	43.32	8.81
PID Reading from Well Casing (ppm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.0
pH before Purge	7.20	6.95	7.00	6.65	7.04	4.95	6.78	8.18	7.35
Temp. before Purge (°C)	7.3	7.1	6.5	7.4	5.8	5.8	3.9	7.3	6.5
Diss. Oxygen before Purge (ppm)	2.1	2.2	4.3	4.2	3.8	9.6	4.8	3.9	1.3
Cond. before Purge (umhos/cm)	600	690	710	990	150	60	150	160	350
Water Volume in Well (gal.)	4.63	4.49	4.02	5.36	1.18	6.32	4.97	6.74	1.07
Purge Method	peristaltic pump	peristaltic pump	peristaltic pump	peristaltic pump	peristaltic pump	peristaltic pump	peristaltic pump	peristaltic pump	peristaltic pump
Purge Start Time	9:26	9:33	9:09	9:07	9:44	10:50	10:50	11:56	11:58
Purge End Time	9:42	9:51	9:31	9:25	9:50	11:13	11:09	12:26	12:03
Purge Rate (gpm)	0.9	0.8	0.5	0.8	0.7	0.8	0.8	0.7	0.6
Volume Purged (gal.)	14	14	13	17	4	19	15	21	4
pH after Purge	7.21	6.84	7.02	6.70	6.79	6.75	7.03	8.14	7.32
Temp. after Purge (°C)	8.4	8.7	8.7	8.9	7.4	8.6	8.8	9.8	6.4
Diss. Oxygen after Purge (ppm)	3.0	2.3	4.5	4.8	2.0	3.8	1.8	3.9	2.7
Cond. after Purge (umhos/cm)	650	750	680	1,000	240	100	240	180	360
pH after Sample	7.18	6.91	6.95	6.68	6.92	6.94	7.31	8.30	7.33
Temp. after Sample (°C)	6.7	7.6	8.0	8.1	6.1	8.4	8.6	8.8	6.1
Diss. Oxygen after Sampling (ppm)	4.1	3.0	5.8	5.6	2.8	4.8	2.3	3.4	2.4
Cond. after Sample (umhos/cm)	690	750	700	1,000	230	100	230	180	360
Sampling Method	teflon bailer	teflon bailer	teflon bailer	teflon bailer	teflon bailer	teflon bailer	teflon bailer	teflon bailer	teflon bailer
Time of Sampling	10:08	10:17	10:02	9:56	11:23	11:22	11:16	12:42	12:30

Monitoring Well Data

Client: RMTProject: LE CarpenterJob No: C 022Date Sampled: 3/12/98Analyst: R. Toogood

Well ID	MW-19-1	MW-19-2	MW 19-3	MW-19-4	MW-19-5	MW-15S	MW-15I	MW-14I	MW-22
Depth to Water From TOC feet (before purging)	10.91	10.94	11.64	9.60	11.03	9.79	9.68	2.00	2.20
Depth to Water From TOC feet (after purging)	11.98	11.36	12.34	12.02	11.37	9.38	9.71	2.11	5.91
Depth to Water From TOC feet (before sampling)	10.08	11.00	11.81	10.05	11.11	9.81	9.68	2.00	2.21
Depth to Bottom From TOC feet	18.00	17.83	17.80	17.82	18.30	19.48	40.14	43.32	8.81
PID Reading from Well Casing (ppm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.0
pH before Purge	7.20	6.95	7.00	6.65	7.04	4.95	6.78	8.18	7.35
Temp. before Purge (°C)	7.3	7.1	6.5	7.4	5.8	5.8	3.9	7.3	6.5
Diss. Oxygen before Purge (ppm)	2.1	2.2	4.3	4.2	3.8	9.6	4.8	3.9	1.3
Cond. before Purge (umhos/cm)	600	690	710	990	150	60	150	160	350
Water Volume in Well (gal.)	4.63	4.49	4.02	5.36	1.18	6.32	4.97	6.74	1.07
Purge Method	peristaltic pump	peristaltic pump	peristaltic pump	peristaltic pump	peristaltic pump	peristaltic pump	peristaltic pump	peristaltic pump	peristaltic pump
Purge Start Time	9:26	9:33	9:09	9:07	9:44	10:50	10:50	11:56	11:58
Purge End Time	9:42	9:51	9:31	9:25	9:50	11:13	11:09	12:26	12:03
Purge Rate (gpm)	0.9	0.8	0.5	0.8	0.7	0.8	0.8	0.7	0.6
Volume Purged (gal.)	14	14	13	17	4	19	15	21	4
pH after Purge	7.21	6.84	7.02	6.70	6.79	6.75	7.03	8.14	7.32
Temp. after Purge (°C)	8.4	8.7	8.7	8.9	7.4	8.6	8.8	9.8	6.4
Diss. Oxygen after Purge (ppm)	3.0	2.3	4.5	4.8	2.0	3.8	1.8	3.9	2.7
Cond. after Purge (umhos/cm)	650	750	680	1,000	240	100	240	180	360
pH after Sample	7.18	6.91	6.95	6.68	6.92	6.94	7.31	8.30	7.33
Temp. after Sample (°C)	6.7	7.6	8.0	8.1	6.1	8.4	8.6	8.8	6.1
Diss. Oxygen after Sampling (ppm)	4.1	3.0	5.8	5.6	2.8	4.8	2.3	3.4	2.4
Cond. after Sample (umhos/cm)	690	750	700	1,000	230	100	230	180	360
Sampling Method	teflon bailer	teflon bailer	teflon bailer	teflon bailer	teflon bailer	teflon bailer	teflon bailer	teflon bailer	teflon bailer
Time of Sampling	10:08	10:17	10:02	9:56	11:23	11:22	11:16	12:42	12:30

Monitoring Well Data

Client: RMTProject: LE CarpenterJob No: C 022Date Sampled: 3/12/98Analyst: R. Toogood

Well ID	MW-25	MW-4
Depth to Water From TOC feet (before purging)	2.00	5.73
Depth to Water From TOC feet (after purging)	8.97	6.31
Depth to Water From TOC feet (before sampling)	1.74	5.81
Depth to Bottom From TOC feet	9.11	18.31
PID Reading from Well Casing (ppm)	0.0	0.0
pH before Purge	7.37	6.83
Temp. before Purge (°C)	4.5	3.4
Diss. Oxygen before Purge (ppm)	2.2	2.9
Cond. before Purge (umhos/cm)	340	255
Water Volume in Well (gal.)	1.16	2.05
Purge Method	peristaltic pump	peristaltic pump
Purge Start Time	12:08	13:18
Purge End Time	12:13	13:25
Purge Rate (gpm)	0.8	1.0
Volume Purged (gal.)	4	7
pH after Purge	7.47	6.99
Temp. after Purge (°C)	6.1	4.8
Diss. Oxygen after Purge (ppm)	1.8	2.4
Cond. after Purge (umhos/cm)	350	260
pH after Sample	7.55	6.92
Temp. after Sample (°C)	4.8	3.6
Diss. Oxygen after Sampling (ppm)	2.5	3.9
Cond. after Sample (umhos/cm)	340	250
Sampling Method	teflon bailer	teflon bailer
Time of Sampling	12:34	13:36



Appendix E

Laboratory Reports

ENVIROTECH RESEARCH INC.

777 New Durham Road
Edison, New Jersey 08817
Phone: (732) 549-3900 Fax: (732) 549-3679

CHAIN OF CUSTODY / ANALYSIS REQUEST

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Name (for report and invoice) <i>Sewer Loop Network</i>		Samplers Name (Printed) <i>P. T. Teger</i>		Site/Project Identification <i>LE Carpenter</i>		
Company <i>Residuals Management Technologies</i>		P.O. #		State (Location of site): NJ: <input checked="" type="checkbox"/> NY: <input type="checkbox"/> Other: <input type="checkbox"/>		
Address <i>999 Plaza Drive Suite 310</i>		Analysis Turnaround Time Standard <input type="checkbox"/> Rush Charges Authorized For <input type="checkbox"/>		Regulatory Program:		
City <i>Schenectady</i>		State <i>NY</i>		Project No: <i>801010</i>		
Zip <i>12305</i>		Other <input type="checkbox"/>		Job No: <i>0022</i>		
Phone <i>518-547-5407</i>		Fax		Sample Numbers		
Sample Identification	Date	Time	Matrix	No. of Cont.	ANALYSIS REQUESTED (ENTER "X" BELOW TO INDICATE REQUEST)	LAB USE ONLY
MW 25	3/12/98	12:24	A9	3	X	49/65
MW 4		13:36		3	X	49/66
MW DUP				3	X	49/67
Field Blank		13:30		3	X	49/68
Trap Blank				2	X	49/69
Preservation Used: 1 = ICE, 2 = HCl, 3 = H ₂ SO ₄ , 4 = HNO ₃ , 5 = NaOH 6 = Other 7 = Other						
Soil						
Water						

Water Metals Filtered (Yes/No)?

Special Instructions

Relinquished by <i>P. T. Teger</i>	Company <i>Residuals Management Technologies</i>	Date / Time <i>3/12/98</i>	Received by <i>P. T. Teger</i>	Company <i>ENVIROTECH</i>
Relinquished by	Company	Date / Time	Received by	Company
Relinquished by	Company	Date / Time	Received by	Company
Relinquished by	Company	Date / Time	Received by	Company
Relinquished by	Company	Date / Time	Received by	Company

Laboratory Certifications: New Jersey (12543), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132).

ENVIROTECH RESEARCH INC.

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CHAIN OF CUSTODY / ANALYSIS REQUEST

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Name (for report and invoice) <i>Sydney Van Nottwick</i>		Samplers Name (Printed) <i>J. Tregard</i>		Site/Project Identification <i>L.F. Carpenter</i>	
Company <i>Residuals Management Technologies</i>		P.O. #		State (Location of site): NJ: <input checked="" type="checkbox"/> NY: <input type="checkbox"/> Other: <input type="checkbox"/>	
Address <i>999 Plaza Drive Suite 370</i>		Analysts Turnaround Time Standard <input type="checkbox"/> Rush Charges Authorized For <input type="checkbox"/> 2 Week <input type="checkbox"/> 1 Week <input type="checkbox"/> Other <input type="checkbox"/>		Regulatory Program:	
City <i>Schumburg</i>		State <i>IL</i>		Job No: <i>CO22</i>	
Zip <i>60173-5907</i>		Fax		Project No: <i>801080</i>	
Phone		Date		Sample Numbers	
Sample Identification	Date	Time	Matrix	No. of Cont.	LAB USE ONLY
MW 19-1	3/28/88	10:05	107	4	49155
MW 19-2	1	10:17	1	4	49156
MW 19-3	1	10:00	1	4	49157
MW 19-4 (w/GR)	1	9:55	1	4	49158
MW 19-5	1	11:03	1	4	49159
MW DUP 19	1	11:22	1	4	49160
MW 155	1	11:22	1	3	49161
MW 15 I	1	11:16	1	3	49162
MW 14 I	1	12:42	1	3	49163
MW 22	1	12:30	1	3	49164
Preservation Used: 1 = ICE, 2 = HCl, 3 = H ₂ SO ₄ , 4 = HNO ₃ , 5 = NaOH					
6 = Other 7 = Other					
Soil: <input type="checkbox"/> Water: <input checked="" type="checkbox"/>					

Water Metals Filtered (Yes/No)?

Special Instructions

Relinquished by 1) <i>J. Tregard</i>	Company <i>Residuals Management Technologies</i>	Date / Time <i>3/28/88</i>	Received by 1) <i>J. Tregard</i>	Company <i>Residuals Management Technologies</i>
Relinquished by 2) <i>J. Tregard</i>	Company	Date / Time <i>1</i>	Received by 2) <i>J. Tregard</i>	Company
Relinquished by 3) <i>J. Tregard</i>	Company	Date / Time <i>1</i>	Received by 3) <i>J. Tregard</i>	Company
Relinquished by 4) <i>J. Tregard</i>	Company	Date / Time <i>1</i>	Received by 4) <i>J. Tregard</i>	Company

Laboratory Certifications: New Jersey (12543), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132).

ENVIROTECH RESEARCH, INC.

Client ID: MW-19
Site: L.E. Carpenter

Lab Sample No: 56775
Lab Job No: D197

Date Sampled: 04/23/98
Date Received: 04/23/98
Date Analyzed: 04/24/98
GC Column: DB624
Instrument ID: VOAGC3.i
Lab File ID: ipid0643.d

Matrix: WATER
Level: LOW
Purge Volume: 5.0 ml
Dilution Factor: 5000.0

VOLATILE ORGANICS - GC/PID METHOD 602

<u>Parameter</u>	<u>Analytical Result</u> <u>Units: ug/l</u>	<u>Method Detection</u> <u>Limit</u> <u>Units: ug/l</u>
Benzene	ND	1000
Toluene	76700	700
Ethylbenzene	2850	700
Xylene (Total)	14900	2500

ENVIROTECH RESEARCH, INC.

Client ID: Trip_Blank
Site: L.E. Carpenter

Lab Sample No: 56776
Lab Job No: D197

Date Sampled: 04/22/98
Date Received: 04/23/98
Date Analyzed: 04/24/98
GC Column: DB624
Instrument ID: VOAGC3.i
Lab File.ID: ipid0642.d

Matrix: WATER
Level: LOW
Purge Volume: 5.0 ml
Dilution Factor: 1.0

VOLATILE ORGANICS - GC/PID METHOD 602

<u>Parameter</u>	Analytical Result <u>Units: ug/l</u>	Method Detection
		Limit <u>Units: ug/l</u>
Benzene	ND	0.20
Toluene	ND	0.14
Ethylbenzene	ND	0.14
Xylene (Total)	ND	0.50

ENVIROTECH RESEARCH INC.

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CHAIN OF CUSTODY / ANALYSIS REQUEST

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Special Instructions	24 Hour Turn Around Time

Relinquished by	Company	Date / Time	Received by	Company
1) <i>David L. Luper</i>	RMT Inc.	4-23-98 1:30 PM	1) <i>Stish Patel</i>	ENVITECH
2) <i>Stish Patel</i>	ENVITECH	4/23/98 1:52	2) <i>Jeff Lauch</i>	ENVITECH
3) Relinquished by	Company	Date / Time	3) Received by	Company
4) Relinquished by	Company	Date / Time	4) Received by	Company

Laboratory Certifications: New Jersey (12543), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132).

7-3-22

ENVIROTECH RESEARCH, INC.

Client ID: Trip_Blank
Site: L.E. Carpenter

Lab Sample No: 51129
Lab Job No: C320

Date Sampled: 03/25/98
Date Received: 03/25/98
Date Analyzed: 03/29/98
GC Column: DB624
Instrument ID: VOAGC3.i
Lab File ID: ipid0136.d

Matrix: WATER
Level: LOW
Purge Volume: 5.0 ml
Dilution Factor: 1.0

VOLATILE ORGANICS - GC/PID METHOD 602

<u>Parameter</u>	<u>Analytical Result</u> <u>Units: ug/l</u>	<u>Method Detection</u> <u>Limit</u> <u>Units: ug/l</u>
Benzene	ND	0.20
Toluene	ND	0.14
Ethylbenzene	ND	0.14
Xylene (Total)	ND	0.50

ENVIROTECH RESEARCH, INC.

Client ID: Field_Blank
Site: L.E. Carpenter

Lab Sample No: 51130
Lab Job No: C320

Date Sampled: 03/25/98
Date Received: 03/25/98
Date Analyzed: 03/31/98
GC Column: DB624
Instrument ID: VOAGC3.i
Lab File ID: ipid0169.d

Matrix: WATER
Level: LOW
Purge Volume: 5.0 ml
Dilution Factor: 1.0

VOLATILE ORGANICS - GC/PID METHOD 602

<u>Parameter</u>	<u>Analytical Result</u> <u>Units: ug/l</u>	<u>Method Detection</u> <u>Limit</u> <u>Units: ug/l</u>
Benzene	ND	0.20
Toluene	ND	0.14
Ethylbenzene	ND	0.14
Xylene (Total)	ND	0.50

ENVIROTECH RESEARCH, INC.

Client ID: GEI-2S
Site: L.E. Carpenter

Lab Sample No: 51131
Lab Job No: C320

Date Sampled: 03/25/98
Date Received: 03/25/98
Date Analyzed: 03/31/98
GC Column: DB624
Instrument ID: VOAGC3.i
Lab File ID: ipid0170.d

Matrix: WATER
Level: LOW
Purge Volume: 5.0 ml
Dilution Factor: 1.0

VOLATILE ORGANICS - GC/PID METHOD 602

<u>Parameter</u>	Analytical Result <u>Units: ug/l</u>	Method Detection
		Limit <u>Units: ug/l</u>
Benzene	ND	0.20
Toluene	ND	0.14
Ethylbenzene	0.21	0.14
Xylene (Total)	ND	0.50

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Special Instructions Lab Q11 Sample for Dis - (2-Ethylhexyl)

Water Metals Filtered (Yes/No)?

Relinquished by		Company	Date / Time	Received by	Company
1)	<i>[Signature]</i>	ENVIRTECH	3/25/98 11:30:00	<i>[Signature]</i>	ENVIRTECH
2)					
3)					
4)					

Laboratory Certifications: New Jersey (12543), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132).

ENVIROTECH RESEARCH, INC.

Client ID: MW-19-1
Site: L.E. Carpenter

Lab Sample No: 49155
Lab Job No: C022

Date Sampled: 03/12/98
Date Received: 03/12/98
Date Analyzed: 03/23/98
GC Column: DB624
Instrument ID: VOAGC3.i
Lab File ID: ipid9974.d

Matrix: WATER
Level: LOW
Purge Volume: 5.0 ml
Dilution Factor: 200.0

VOLATILE ORGANICS - GC/PID METHOD 602

<u>Parameter</u>	<u>Analytical Result</u> <u>Units: ug/l</u>	<u>Method Detection</u> <u>Limit</u> <u>Units: ug/l</u>
Benzene	ND	40.0
Toluene	4270	28.0
Ethylbenzene	219	28.0
Xylene (Total)	1160	100

ENVIROTECH RESEARCH, INC.

Client ID: MW-19-2
Site: L.E. Carpenter

Lab Sample No: 49156
Lab Job No: C022

Date Sampled: 03/12/98
Date Received: 03/12/98
Date Analyzed: 03/22/98
GC Column: DB624
Instrument ID: VOAGC3.i
Lab File ID: ipid9951.d

Matrix: WATER
Level: LOW
Purge Volume: 5.0 ml
Dilution Factor: 250.0

VOLATILE ORGANICS - GC/PID METHOD 602

<u>Parameter</u>	<u>Analytical Result</u> <u>Units: ug/l</u>	<u>Method Detection</u> <u>Limit</u> <u>Units: ug/l</u>
Benzene	ND	50.0
Toluene	9830	35.0
Ethylbenzene	1130	35.0
Xylene (Total)	6010	125

ENVIROTECH RESEARCH, INC.

Client ID: MW-19-3
Site: L.E. Carpenter

Lab Sample No: 49157
Lab Job No: C022

Date Sampled: 03/12/98
Date Received: 03/12/98
Date Analyzed: 03/22/98
GC Column: DB624
Instrument ID: VOAGC3.i
Lab File ID: ipid9952.d

Matrix: WATER
Level: LOW
Purge Volume: 5.0 ml
Dilution Factor: 1.0

VOLATILE ORGANICS - GC/PID METHOD 602

<u>Parameter</u>	<u>Analytical Result</u> <u>Units: ug/l</u>	<u>Method Detection</u> <u>Limit</u> <u>Units: ug/l</u>
Benzene	ND	0.20
Toluene	ND	0.14
Ethylbenzene	ND	0.14
Xylene (Total)	ND	0.50

ENVIROTECH RESEARCH, INC.

Client ID: MW-19-4
Site: L.E. Carpenter

Lab Sample No: 49158
Lab Job No: C022

Date Sampled: 03/12/98
Date Received: 03/12/98
Date Analyzed: 03/22/98
GC Column: DB624
Instrument ID: VOAGC3.i
Lab File ID: ipid9953.d

Matrix: WATER
Level: LOW
Purge Volume: 5.0 ml
Dilution Factor: 1.0

VOLATILE ORGANICS - GC/PID METHOD 602

<u>Parameter</u>	<u>Analytical Result</u> <u>Units: ug/l</u>	<u>Method Detection</u> <u>Limit</u> <u>Units: ug/l</u>
Benzene	ND	0.20
Toluene	ND	0.14
Ethylbenzene	ND	0.14
Xylene (Total)	ND	0.50

ENVIROTECH RESEARCH, INC.

Client ID: MW-19-5
Site: L.E. Carpenter

Lab Sample No: 49159
Lab Job No: C022

Date Sampled: 03/12/98
Date Received: 03/12/98
Date Analyzed: 03/23/98
GC Column: DB624
Instrument ID: VOAGC3.i
Lab File ID: ipid9975.d

Matrix: WATER
Level: LOW
Purge Volume: 5.0 ml
Dilution Factor: 5000.0

VOLATILE ORGANICS - GC/PID METHOD 602

<u>Parameter</u>	<u>Analytical Result</u> <u>Units: ug/l</u>	<u>Method Detection</u> <u>Limit</u> <u>Units: ug/l</u>
Benzene	ND	1000
Toluene	123000	700
Ethylbenzene	1920	700
Xylene (Total)	10100	2500

ENVIROTECH RESEARCH, INC.

Client ID: MW-Dup-19
Site: L.E. Carpenter

Lab Sample No: 49160
Lab Job No: C022

Date Sampled: 03/12/98
Date Received: 03/12/98
Date Analyzed: 03/23/98
GC Column: DB624
Instrument ID: VOAGC3.i
Lab File ID: ipid9976.d

Matrix: WATER
Level: LOW
Purge Volume: 5.0 ml
Dilution Factor: 250.0

VOLATILE ORGANICS - GC/PID METHOD 602

<u>Parameter</u>	<u>Analytical Result</u> <u>Units: ug/l</u>	<u>Method Detection</u> <u>Limit</u> <u>Units: ug/l</u>
Benzene	ND	50.0
Toluene	3670	35.0
Ethylbenzene	280	35.0
Xylene (Total)	1470	125

ENVIROTECH RESEARCH, INC.

Client ID: Field Blank
Site: L.E. Carpenter

Lab Sample No: 49168
Lab Job No: C022

Date Sampled: 03/12/98
Date Received: 03/12/98
Date Analyzed: 03/22/98
GC Column: DB624
Instrument ID: VOAGC3.i
Lab File ID: ipid9947.d

Matrix: WATER
Level: LOW
Purge Volume: 5.0 ml
Dilution Factor: 1.0

VOLATILE ORGANICS - GC/PID METHOD 602

<u>Parameter</u>	<u>Analytical Result</u> <u>Units: ug/l</u>	<u>Method Detection</u>
		<u>Limit</u> <u>Units: ug/l</u>
Benzene	ND	0.20
Toluene	ND	0.14
Ethylbenzene	ND	0.14
Xylene (Total)	ND	0.50

ENVIROTECH RESEARCH, INC.

Client ID: Trip_Blank
Site: L.E. Carpenter

Lab Sample No: 49169
Lab Job No: C022

Date Sampled: 03/12/98
Date Received: 03/12/98
Date Analyzed: 03/22/98
GC Column: DB624
Instrument ID: VOAGC3.i
Lab File ID: ipid9946.d

Matrix: WATER
Level: LOW
Purge Volume: 5.0 ml
Dilution Factor: 1.0

VOLATILE ORGANICS - GC/PID METHOD 602

<u>Parameter</u>	<u>Analytical Result</u> <u>Units: ug/l</u>	<u>Method Detection</u> <u>Limit</u> <u>Units: ug/l</u>
Benzene	ND	0.20
Toluene	ND	0.14
Ethylbenzene	ND	0.14
Xylene (Total)	ND	0.50